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ABSTRACT

This document comprises an evaluation of the 1988 METRO Achievement Program, a summer educational program to help develop the academic potential of primarily Black and Hispanic girls entering the seventh and eighth grades in Chicago. The 5-week program included the following components: (1) mathematics, science, and communication skills classes; (2) a character development class; (3) a fine arts class; (4) team sports; (5) personal counseling; and (6) field trips. Evaluation information was gathered from surveys of participants, parents, and advisors, and from comparison surveys of girls in five of the schools from which METRO recruits participants. The following findings are reported: (1) only seventh-grade blacks and eighth-grade Hispanics showed significant increases in self-esteem and seventh-grade Hispanics showed a decrease in self-esteem; (2) the overall patterns of self-esteem were similar to those of the five comparison schools but the individual measures of participants were better than those at the comparison schools; (3) parents and advisors perceived increases in participants' self-confidence and self-assurance, and reported that a majority of the participants became less shy and more outgoing; (4) participants reported liking the program and one-sixth reported having learned something new; (5) almost all participants would recommend the program to others; (6) 20 percent of the participants reported an increase in self-confidence; and (7) eighth-grade participants were much more positive about the academic classes than seventh-graders. Recommendations for improvement are suggested. Thirty-seven tables of statistical data, copies of the survey questionnaires, and a list of 82 references are appended. (FMW)

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METRO ACHIEVEMENT PROGRAM

SUMMER 1988

EXTERNAL EVALUATION REPORT

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METRO ACHIEVEMENT PROGRAM

SUMMER 1988

EXTERNAL EVALUATION REPORT

Evaluator: Denisse R. Thompson
November, 1989

I wish to acknowledge the generous help of Susan S. Stodolsky and Zalman P. Usiskin, both Professors of Education at The University of Chicago. Both gave valuable advice in the design of the evaluation and its instruments.

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HISTORICAL BACKGROUND AND BRIEF DESCRIPTION OF THE PROGRAM

Since 1962, Midtown Center in Chicago has provided a program for disadvantaged boys in grades seven through nine. This program originally started as a tutoring, sports, and trade program but expanded in 1972 to a program emphasizing academic achievement and character development. Several years ago, concern was expressed that disadvantaged girls in the same neighborhoods needed the opportunities offered by Midtown. Rather than make Midtown coeducational, it was decided to form a similar program for girls. It was felt that, for the age group being served by the programs, more could be accomplished in single sex programs than in coed programs. Thus, the METRO Achievement Program for girls was piloted on a small scale in the summer of 1985. The program ran at full capacity during the summers of 1986 and 1987.

The METRO Achievement Program is a summer educational program to help girls entering the seventh and eighth grades "who are receptive to challenge and seek to develop their full potential" [METRO, 1987]. The program has three broad goals: to encourage academic achievement, to aid personal development, and to instill a spirit of community service. Through these goals, METRO works to help girls "qualify for entrance into the best high schools [in the city] and eventually, colleges" [METRO, 1987].

The METRO program primarily serves black and Hispanic youth. Many of these students do not develop their full academic potential because of various environmental circumstances. Thus there is the goal of academic achievement. In terms of personal development, METRO strives to improve the self-image of the girls and build character. This aspect is designed to provide a basis for resisting gang and drug pressures which are often prevalent in the schools which these students attend. By instilling a spirit of community service, it is hoped that METRO alumni will later be willing to help other disadvantaged youth reach full potential.

The program runs five days a week for five weeks in the summer. The girls participate in academic classes (mathematics, science, and communication skills), a character development class, a fine arts class, team sports, and personal counseling sessions. There is also a weekly excursion to the Indiana Dunes or to places of interest in the city. Speakers come to the program and provide information about various careers, occasionally serving as adult mentors or support personnel for girls desiring to enter the discussed professions.

As mentioned above, academic classes are offered in mathematics, communication skills, and science. These classes are designed to improve skills that may enable the girls to enroll in an academic track in junior high and/or high school. There is also an attempt to improve attitudes toward school and toward various subjects. It is hoped that this academic work will translate to improved grades during the following academic year. A brief description of the classes follows.

1. In mathematics, the curriculum is pre-algebra for seventh-graders and algebra for eighth-graders. Both groups use Transition Mathematics, an applications-oriented curriculum developed by the University of Chicago School Mathematics Project; the curriculum also advocates and requires the use of scientific calculators. Seventh-graders start at the beginning of the text and eighth-graders start several chapters into the text. Math is the only class which uses a textbook.

2. The science class emphasizes laboratory work to provide such experience prior to high school. The curriculum is oriented toward the natural and physical sciences.

3. The communication skills class places a heavy emphasis on public speaking, in addition to writing and grammar. The emphasis on public speaking is designed to help the girls overcome shyness.

4. The curriculum for character development has a religious base with a Catholic perspective. There are frank discussions about sexual morality, relationships with friends and family, and relationships with God.

5. Fine arts provides an outlet for girls to express

themselves through various art mediums.

6. Team sports is an active period with girls learning the rules and participating in various sports, among which are softball and soccer.

The personal development aspect of the program is handled through one-on-one counseling to help girls develop "clear convictions, loyalty, thoughtfulness, consideration of others, and a readiness to be of service" [METRO, 1987]. Counseling occurs concerning sexual morality, drugs and alcohol, relationships with friends and family, interests, and academic plans.

There is a smaller scale aspect of the program that occurs on Saturdays during the academic school year. During the 87-88 school year this program involved about ten to fifteen girls. It is hoped that it will expand in the future. However, this evaluation is for the summer program only and will not address evaluation of the academic school year portion.

METRO recruits participants for the program through spring visits to most of the public and private (Catholic) schools in the area of the city served by the program, the west side of Chicago. School visits depend on the willingness of school personnel to allow the presentation. After the presentation, girls complete a brief survey indicating whether or not they would be interested in attending METRO. Program personnel then attempt to contact the families of interested girls by phone to set up interviews with the girls and their parents. Because of time and personnel constraints, only between one-third and one-half of the interested girls are actually contacted. In making contacts, METRO contacts girls first from the schools with the best reputations and second from schools with no prior METRO participants. About one-third of the accepted participants take the initiative and call METRO.

A copy of the parent interview administered by METRO staff can be found in Appendix B. In particular, METRO is interested in determining parents' willingness to help their daughter(s) by encouraging them, monitoring their academic and personal progress, and giving them academic assistance (help with METRO's homework) as necessary. Girls are interviewed about their reasons for wanting to attend METRO to determine if those reasons are in agreement with METRO's goals and about their attitude toward school. In general, METRO tries to identify that "good kid who just needs a chance." A copy of the student interview can also be found in Appendix B.

Selection is then based on these interviews, together with school grade and attendance records. Program personnel look at consistency of grades, marks relating to effort and behavior, the number of days absent or tardy, and any teacher comments. Standardized test scores are also used. Until 1987, METRO administered the School and College Ability Test. Girls selected for the program needed to have a composite score above the thirtieth percentile nationally. In the summer of 1987, METRO began looking at the scores from the Iowa Test of Basic Skills, the California Achievement Test, or the Metropolitan Achievement Test that had been administered in the schools. Selected girls now need to have a composite score at least at the fortieth percentile. In addition, there is an examination of the component verbal and quantitative scores because METRO usually does not accept girls low in both areas. The rationale for this decision is that a high score in one area gives METRO a basis for development. In general, no more than one or two girls are chosen per school to avoid the formation of cliques and to ensure that girls from as many schools as possible are able to benefit from the program.

PURPOSE OF THE EVALUATION

The evaluation of METRO during the 1988 summer session was conducted to provide some quantitative and qualitative information on the program and its effectiveness in meeting its desired objectives. Anecdotal evidence of positive effects had been randomly collected by METRO personnel during the previous years of the program. It was felt that now would be an appropriate time to have an outside evaluation that would attempt to systematically collect information and quantify it in some way. An outside evaluation would also have the advantage of a degree of objectivity difficult for METRO staff to attain. Hence, planning for this evaluation began in Fall, 1987. The actual evaluation was conducted from May through October 1988.

In particular, this evaluation attempted to provide information relevant to the following questions.

1. Are there differences in general self-esteem or in area specific self-esteem (home/parents, social/self, school/academic) between blacks and Hispanics?
2. Is it possible to effect changes in these measures of self-esteem during a five-week program such as METRO's?
3. What changes do the advisors see in the girls from the beginning of the program to the end?
4. What do parents see as the benefits of METRO for their daughters? What changes do they see in their

daughters that they attribute to METRO?

5. What do girls perceive as the parts of METRO that they like the best or that they like the least? Are these perceptions different at the beginning of the program than at the end?
6. When asked to make comments about the different classes, what differences in comments appear among the different classes?
7. How do girls compare their math course at METRO with their math course at school?
8. How do girls compare their science course at METRO with their science course at school?
9. Are there differences in attitudes toward mathematics based on race or ethnic group?
10. Is it possible to effect changes in math attitudes in a summer program that uses a technology-based, applications-oriented approach to mathematics?
11. Are there differences in anticipated math course selection based on race or ethnic group?
12. Is it possible to effect changes in anticipated math plans in a summer program that uses a technology-based, applications-oriented approach to mathematics?

The first four questions relate to broad goals of METRO to improve the girls' self-concept and confidence in their own ability. These questions gather information on this area from several perspectives: from the girls in questions one and two, from their personal advisors in question three, and from their parents in question four.

Questions five and six are designed to provide some global comparisons between the different parts of METRO. Differences in comments between the various parts may provide METRO staff with the information needed to critically compare and contrast the functions of the different parts of the program. Such information is important in modifying the program as necessary.

Finally, questions seven and nine through twelve explore attitudes toward a particular subject area, namely mathematics. Such detailed information on all subject areas would have been desirable but time constraints necessitated a focus on just one area. Mathematics was chosen for several reasons. First, competence and continued study of mathematics is crucial in permitting access to various scientific and technical careers. If girls are going to broaden their options, then they must deal with the fact that mathematical competence is a prerequisite in many areas. Second, mathematics is an area of interest for Natalie Jakucyn, who was the program director. Third, mathematics education is the area of expertise of the evaluator.

RESEARCH BACKGROUND

This section of the evaluation contains a review of some of the research relating to METRO's goals. This review is not intended to be comprehensive but is merely intended to provide a research perspective for interpreting the findings of the evaluation. Relevant literature will be summarized in three parts: literature on intervention programs including programs with a focus on mathematics and science, literature on self-esteem/self-concept, and literature on attitudes toward school and, in particular, attitudes toward mathematics and anticipated future math courses.

INTERVENTION PROGRAMS

Some evidence does exist for the importance of programs in early adolescence. Kathryn Scott [1984] reports that "at this age pupils make many academic decisions that affect options for future occupational roles" [p. 369]. In a study of a program for middle school pupils on sex role stereotypes, she found that perceptions of occupational, school, and family roles could be changed. Girls also made greater changes in self-concept.

Further, the school programs chosen in junior and senior high can affect career options. The Midtown Educational Foundation quotes from the Rockefeller Foundation report: "We find that the scientific/mathematical pool from which quantitative Ph.D. graduates ultimately derive first appears in elementary schools. It emerges strongly before the 9th grade and is essentially complete by the 12th." The fact that early decisions in mathematics and science have profound implications on future career options is one reason for METRO's emphasis on working with students at the seventh and eighth grade levels while academic decisions can still be made.

Information on intervention programs whose goals are broad-based, such as those of METRO, is scant and research on such programs is very difficult to find. When such information does exist, the effectiveness of the program is usually related anecdotally rather than with systematic data obtained either quantitatively or qualitatively. One such program is the Harbor School Age Center in New York City. Although one function of this program is day-care for children ages six to fourteen, many of the program aspects are similar to those of METRO. Teachers of students enrolled in the program report that the center's participants do better in school and have better socialization skills than other students. Another indication of the program's success is that participants do not want to leave when they reach the cut-off age of fourteen [Lefstein and Lipsitz, 1986].

Another program similar to METRO is that developed at the Hillsborough County (Florida) Center of Excellence, one of several programs in Florida originally funded by the McKnight Foundation. Its aim is "to increase the number of minority students who are motivated, prepared, qualified and willing to pursue undergraduate degrees at post-secondary institutions" [Campbell, Patton, & Robinson-Lewis, 1988,

p. 146]. One aspect of the Center's work is a Summer Academic Enrichment Program. This K-12 program, which runs for six weeks, deals with Black history/culture and seeks to reinforce academic skills in the areas of math, science, English, reading, and communication. The three keys to the program's success are praise, recognition, and reward. Further, the program works cooperatively with black churches; one minister reports that his youth have gained in self-confidence/self-esteem and have improved their grades and developed their talents. Parents report their children have become more outgoing.

Some data on an intervention program's effectiveness has been collected by the Midtown Achievement Program in Chicago, the program similar to METRO but for boys. In 1982 Midtown surveyed sixty-three percent of its alumni and found that sixty-four percent had continued to college; this contrasts with a college attendance figure of roughly thirty percent for individuals from similar backgrounds in Chicago. From the 1980 high school graduating class, eighty percent of Midtown's participants were college bound; from the 1982 graduating class, the figure was seventy-two percent. Approximately forty percent of Midtown participants in college were majoring in engineering or scientific fields. Approximately sixty-nine percent of Midtown's students either had or were attending college prep high schools. Of even more significance is the fact that "An overwhelming majority (98%) of Midtown's students, both past and present, credit

MAP [Midtown Achievement Program] and the Midtown staff with significantly helping them to enter a good high school and, where applicable, college" [Midtown News, 1982].

Thus, it would appear that broad-based intervention programs can be beneficial and exert a positive influence in the lives of the adolescents served by the program. These benefits may range from improved socialization skills to a broadening of aspirations as reflected in college attendance and/or occupational choice.

In addition to broad-based programs such as those mentioned above, a number of intervention programs have arisen that deal specifically with mathematics, science, and technology for women. Fennema, Wolleat, Pedro, and Becker [1981] report success with a program, Multiplying Options and Subtracting Bias, designed to change female attitudes and ultimately course selection. Success was reported even though the program is a relatively short-term intervention.

Another intervention program is Eureka!, a program for thirteen and fourteen year old girls that emphasizes math, computers, science, and competitive sports. The program runs for four weeks during the summer with seven Saturday follow-up sessions during the school year. By the end of the summer program, the course-taking plans of the girls had been dramatically affected. The percentage of girls planning to take three years of math increased from 10% to 36%, for four years of math the percentage increased from 14% to 69%, and for calculus it increased from 21% to 46%. Although course-taking plans remained high at the end of the school follow-up sessions, attitude measures dropped from their summer high to the level that existed prior to intervention. Apparently, school math experiences eroded confidence levels that Eureka! had inspired.

Still another specialized program is currently being developed by the Girls Clubs of America, which serve roughly a quarter of a million girls each year. Historically, Girls Clubs programs have been designed to help young girls assume responsibility for their decisions, including developing the skills for economic independence. In January 1985, a new program, Operation SMART (Science, Math and Relevant Technology), was initiated with the goal of developing programs to encourage greater participation in the areas of science, mathematics, and technology. Initially, the focus was on girls ages six to eleven, but a year later the focus expanded to include girls in early adolescence (ages twelve to fourteen). Future plans include development of programs for girls ages fifteen to eighteen.

Operation SMART involves six components: 1) an attitude to scientific inquiry; 2) structured lessons with hands-on experiences; 3) incorporating math/science throughout the Club's programming; 4) career exploration; 5) family involvement; and 6) community connections and access to resources. Research and evaluation are currently underway to determine the effectiveness of the models being developed.

One other special intervention program should be mentioned. The Math/Science Network in Berkeley, California, developed a conference format entitled Expanding Your Horizons in Science and Mathematics. These conferences have been conducted for twelve years; more than 140,000 students have attended in twenty states. Girls are exposed to appropriate role models in math and science and are given specific information about career opportunities. After such a conference in North Carolina, a survey found that 80.7% of the participants had clarified occupational plans and 67.7% had learned something new about math and science needed in various careers [Watson, Prichard, Conwell, 1989].

These intervention programs in math and science do provide some support for METRO's attempt to change attitudes toward these subjects in a five-week summer program. However, METRO's goals are much broader than the goals of the above programs. Hence, the program's impact on any one academic area may be tempered by the broader focus. Long-term contact with the girls is needed to determine permanent changes.

SELF-CONCEPT/SELF-ESTEEM

The meanings of the terms self-esteem and self-concept are often not completely clear in the literature. Although these terms sometimes have different meanings, in this evaluation the two terms are assumed to be interchangeable. Coopersmith [1981] defines self-esteem as expressing "an attitude of approval or disapproval and indicates the extent to which a person believes him- or herself capable, significant, successful, and worthy" [p. 5]. Shavelson, Hubner, and Stanton [1976] define self-concept as "a person's perception of himself ... [which] is potentially important and useful in explaining and predicting how one acts" [p. 411]. Furthermore, they consider self-concept as having both academic and non-academic components. Byrne and Shavelson [1986] report that self-concept is "one's perceptions of self and that these perceptions derive from interactions with significant others, self-attributions, and overall experiential aspects of the social environment" [p. 474]. Along the same lines, Brookover, Thomas, and Paterson [1964] indicate that "an individual's self-concept is more closely related to his estimate of general attitudes toward him than it is to the perceived responses of a particular group" [p. 277].

There are some studies which seek to explore whether or not differences exist in self-esteem based on sex or race. Such studies would appear to be important because of the influences that culture, home, and significant others may have on the development of self-esteem. As Epps [1981] indicates, "the particular combination of attributes that constitute the basis of high self-esteem varies from individual to individual, but is systematically related to the social and cultural background of the individual and to the values held by persons who are close to him, such as parents and friends" [p. 86]. Indeed, Willig, Harnisch, Hill, and Maehr [1983] studied the sociocultural and educational correlates of motivation. They indicate that minority children who are not within the American mainstream often experience negative motivation; one manifestation of negative motivation is self-deprecating attribution.

The actual results of self-esteem studies by race have been somewhat mixed. Zirkel [1971] reports studies in the early 1960s in which white children had significantly higher self-concept scores than black children. Later studies resulted in higher self-concept scores on the part of black children. Furthermore, he reports two studies in which the self-concept scores for Mexican-Americans were compared to those of blacks and whites. In one, Mexican-Americans scored significantly below both blacks and whites while in the other they scored below whites but not below blacks.

The mixed nature of racial comparisons is reflected in a report by Hare [1984]. He indicates that some studies have shown blacks to have higher self-esteem measures than whites, others have shown whites to have higher measures, and still others have shown no differences between the two groups. In his research, he found "no significant race, SES, or sex-differences in general self-esteem" [p. 181]. He did find, however, a difference in one area-specific measure. Whites scored higher on the specific area of school self-esteem. Additionally, he found a rise among blacks in peer self-esteem and in general self-esteem from fifth to eighth grade.

Willig, et al [1983] raise the issue of whether self-concept is the appropriate measure to use with black children in dealing with aspects of academic success. They indicate that despite negative social reinforcement, black children do not necessarily have a lower self-concept than other groups. Even with low scores on school performance measures, black children in their study did not necessarily have negative attributions. Hence, they conclude that motivation variables for such children should perhaps deal with the "area of incentive values and the perceived utility of academic work" [p. 403]. Hence, METRO's counseling sessions, dealing with college admission requirements, future plans, and the importance of education, may be important in improving motivational aspects for black girls.

A number of studies have been conducted on the relationship between self-concept and achievement. In a study by Rubin, Dorle, and Sandidge [1976], "self-esteem, as measured by the Coopersmith Self-Esteem Inventory, was found to have a moderate relationship with, but not a strong independent effect on, school achievement and behavior" [p. 18]. In a survey of empirical investigations, West and Fish [1973] report that correlations ranging from .18 to .50 are frequently found between self-concept and school achievement. When the self concept measures are specific to academic ability rather than being general measures, the correlations tend to run from .27 to .60 . West and Fish also report a study by Frericks in 1971 in which black sixth-grade pupils with high grade point averages were found to have higher self-esteem scores than pupils with low grade point averages.

In a 1975 study, Corinne Scott discusses a survey of research in which the magnitude of correlations between perceptions of academic ability and academic performance approaches .50 . "The data suggest that twenty-five percent of the variation in school achievement is attributable to general academic self-concept" [p. 1]. Working with seventh-grade pupils, she found that "variation in school achievement can be accounted for by one or more of the factors integral to the ASC construct [academic self concept] beyond the powerful influence of IQ, sex, and race" [p. 8].

Some research indicates that the relationship between self-concept and academic ability changes over time. Newman [1984] found that "between Grades 2 and 5, achievement exerts influence on self-concept of ability. Between Grades 5 and 10, there was no strong causal relationship between achievement and self-concept, or vice-versa" [p. 866]. Thus, it may be that by the time METRO works with the girls, the inter-relational aspect of self-concept and academic achievement is no longer that strong.

Another interesting research aspect deals with the assignment of success and failure. Robison-Awana, Kehle, and Jenson [1986] report that academically competent girls attribute success to their own internal ability. They also rate themselves high in self-esteem. Marsh [1986] reports somewhat similar results. He reports that "students who were more academically able were more likely to attribute their academic successes internally and were more likely to attribute their academic failures externally than were students who were less academically able" [p. 198]. Those with a high self-concept do not attribute failures to lack of internal ability. Thus by raising self-esteem, METRO may be able to help students persevere when concepts are difficult; having problems is not necessarily due to lack of ability. However, if METRO is successful in improving self-esteem, more study will be needed to determine whether or not that increase in self-esteem transfers to increased academic achievement.

One study dealing with attempts to change self-esteem in junior high students was reported by McMillan [1978]. This program focused on the aspects of self-esteem dealing with personal awareness and social awareness. McMillan reports some success with two of the three groups undergoing the program.

As self-concept appears to have several dimensions, programs have focused on the importance of significant others. In working with two groups of juvenile delinquents, one treatment group also worked with the parents of the children. This group experienced the greater self-esteem gains. The researcher [Gurney, 1987] summarizes the result as indicating "the powerful contribution made by parental involvement in self-esteem improvement programmes" [p. 132]. METRO does require some parental commitment. Parents must indicate willingness to see that girls do their homework and attend regularly and on time. There is even a parent meeting during the course of the program. This aspect of the program has not been studied in detail, although some parental perceptions of the program's effectiveness will be discussed in a later section of this report.

Gurney provides one other aspect that is worth mention, the importance of testing for behavior changes. In fact, he states that behavior change "may be a more important aspect of change because of its potential for greater socialization for other situations outside the school" [p. 132]. This is an important note because there is anecdotal evidence to indicate that METRO does have an influence in changing behaviors and in changing attitudes toward school and academic success, whether or not changes occur in the self-esteem measures to be discussed later.

In summary, the research would seem to indicate a possible relationship between self-concept and academic achievement. METRO's participants are average students, often making C's in school. There is some evidence to support beliefs that these students have a lower self-esteem and perhaps attribute failures to lack of ability. Thus, METRO's goals to increase academic performance and improve self-esteem would seem to be important in helping these girls develop their full potential.

ATTITUDES TOWARD SCHOOL SUBJECTS AND, PARTICULARLY, TOWARD MATHEMATICS

In *A Place Called School*, Goodlad [1984] provides some indication of the relative ordering of different school subjects in terms of liking. His analysis found that 85.9% and 80.1% of junior high students reported liking arts and physical education, respectively. Corresponding percentages for the academic subjects were lower. In particular, the math, science, and English percentages were 74.8%, 66.1%, and 69.3%, respectively.

Additionally, Goodlad asked students currently studying a subject to indicate their interest in the subject. At the junior high level, 83.6% and 77.6% reported physical education and arts, respectively, as interesting. Corresponding percentages for the academic subjects were again lower with math, science, and English percentages being 69.6%, 66.1%, and 62.6%, respectively.

In terms of detailed comparisons of activities within these subjects, Goodlad indicates that students perceived themselves as having some decision-making authority in the arts and physical education. These two subjects were also characterized by greater student participation and generated greater enthusiasm on the part of students.

Greater student participation can also be important in the academic areas. In a study by Okebukola and Adeniyi (1987], the utilization of hands-on resources in science was found to have a positive effect on achievement and attitude toward science. The use of laboratory materials seemed to facilitate the learning of scientific concepts. This result provides some support for METRO's emphasis on science from a laboratory perspective.

Narrowing the focus to attitudes toward mathematics, there is a considerable body of literature from which to draw knowledge. Attitude toward mathematics is of particular concern because of the interplay of attitude toward mathematics and continued study of the subject. Fennema [1982] indicates that the lower achievement in math by females is based upon at least three aspects: "differential enrollment by girls and boys in advanced mathematics courses in high school, lower achievement by females in high-level mathematical tasks, and more negative attitudes on the part of females toward the learning of mathematics" [1982, p. 9]. These more negative views on the part of females are of concern because, in general, negative attitudes toward math seem to persist with progression through the grades [Aiken, 1970]. In fact, Pedersen, Bleyer, and Elmore [1985] found that scores for girls decreased from seventh to eighth grade on six of eight attitude measures. To underscore the importance of attitudes for females, Aiken [1976] indicates that grades for girls can be predicted on the basis of attitudes to a greater extent than is true for boys. Of course, it is possible that considerable changes in this relationship may have occurred in the past thirteen years.

Considerable research has been done in the last two decades to conceive of attitude toward mathematics as a multi-dimensional variable. Hanna and Kuendiger [1986] conceive of attitude toward mathematics as consisting of five subscales: math as a process in which students describe the subject as static or dynamic; the home support for learning mathematics; the role of math in society in terms of its practical utility; the view of math and oneself in terms of how feelings toward success/failure relate to continued study; and gender stereotyping in whether or not individuals view boys having greater math ability or greater need for math than girls. In their study involving twenty countries, the subscale relating to gender stereotyping generated the biggest differences by country or by sex.

The practical utility or usefulness of mathematics is an aspect of math attitude which has received considerable attention on the part of numerous researchers [Eccles and Jacobs, 1986; Fennema, 1978, 1982; Fox, 1980; Meece, Parsons, Kaczala, Goff, Futterman, 1982; Pedro, Wolleat, Fennema, Becker, 1981; Reyes, 1981; Sherman, 1976 and 1982]. The consensus of these research studies is that boys tend to perceive math as more useful than girls, often as early as the sixth grade. Further, the perceived usefulness of mathematics is related to the continued study of mathematics; when students perceive mathematics as being useful to them, they elect to take more courses. Considering the importance of the junior high years in terms of math performance, students at this level need considerable information on the extent to which mathematics influences career choices and other educational options [Elmore, Broadbooks, Pedersen, Bleyer, 1985; Pedro, Wolleat, Fennema, Becker, 1981].

Another dimension of mathematics attitude is the role played by significant others (parents, teachers, peers) in influencing student perception of mathematics [Eccles and Jacobs, 1986; Elmore, Broadbooks, Pedersen, Bleyer, 1985; Fox, 1980; Sherman, 1982]. Students are influenced by parental attitudes toward them as mathematics learners. These parental beliefs are powerful influencers of math attitudes; for girls, fathers exert a greater influence than mothers. The perception of parents towards how difficult and how useful the subject is for their child affects the child's attitude and subsequent course-taking. Fox [1980] found lower expectations by parents for their daughters than for their sons in the realm of mathematics.

Related to the influence of significant others is the fact that males tend to see math more as a male domain than do females [Fennema, 1981; Hanna and Kuendiger, 1986; Sherman, 1976]. Hypotheses exist that such attitudes serve as socializing factors that inhibit females from engaging in higher levels of mathematics. Nelson reports that the period from grade five or six to grade eight is a time "when girls are most vulnerable to peer values about what it means to be competent, successful, and female. Classroom and out-of-school experiences which consistently communicate stereotyped or limited expectations or are sparse in stimulating examples and encouragement will undercut girls' motivation to learn and will undercut the development of their full potential as productive and self-actualizing adults" [Girls Clubs of

America, 1986, pp. 3-4].

Still another dimension of attitude that is worth discussion is the confidence that girls have in themselves as learners of mathematics. Fennema [1982] reports that "even when girls are achieving as well as boys, they report less confidence in their ability to learn mathematics. This lesser confidence is apparent by at least sixth grade, and maybe earlier" [p. 13]. Merkel-Keller [1977] indicates that for girls, the learner's self-concept and sex-role stereotyping is the second most important component of math attitude, behind the aspect of attitude toward math as a subject. Sherman [1982], Fennema [1981], and Meece and colleagues [1982] indicate that continued course-taking is more likely when students have confidence in their ability to learn mathematics. Pedersen and colleagues [1985] indicate that to facilitate the feelings of success at mathematics, girls seem to need overt encouragement that they are proceeding in the correct manner.

During the 1985-86 school year, the Fourth National Assessment of Educational Progress was administered to 34,000 students in grades three, seven, and eleven. Information was collected on mathematical proficiency, attitudes toward mathematics, and course-taking patterns of students. The results from the attitude questions at grade seven are of particular interest here because they provide information along many of the attitude dimensions that have been discussed above. Students at grade seven are of ages comparable to the ages of METRO participants.

A number of questions explore the issues of interest or confidence in doing mathematics. At the seventh grade, fifty-seven percent of the females either strongly agreed or agreed with the statements "I enjoy mathematics" and "I am good at mathematics" [Dossey, Mullis, Lindquist, Chambers, 1988]. Only about six percent of seventh grade girls believed that "Mathematics is more for boys than for girls."

Further, large percentages of females viewed mathematics as having practical utility. Eighty-one percent of the females responded positively to the statement "Most of mathematics has practical use" and seventy-six percent agreed that "Mathematics is useful in solving everyday problems."

However, a substantial number of students viewed mathematics as mostly memorizing or following formulas. For students in the lower quartile, fifty-six percent of seventh-graders agreed with the statement "Learning mathematics is mostly memorizing" while only forty-four percent of students in the upper quartile expressed this viewpoint. For the statement "There is always a rule to follow in mathematics," percent agreement for the lower and upper quartiles were eighty-four percent and seventy-nine percent, respectively.

Because the METRO math program uses an innovative curriculum, it seems natural to ask what effect such types of curricula have had on attitude in the past. Aiken [1970] reports that the School Mathematics Study Group (SMSG) curriculum resulted in somewhat less-positive attitudes toward mathematics possibly because it was "more abstract and demanding than the traditional curriculum" [p. 582]. However, he also reports that students participating in the University of Illinois Committee on School Mathematics (UICSM) curriculum developed more favorable attitudes toward mathematics than students in the comparison classes. In an update, [1972] he implies that the best way for a teacher to attempt to improve attitudes is to "associate mathematics with things that the learner views as pleasant, interesting, or of potential value to him" [p. 232].

The Transition Mathematics Field Study [Hedges, Stodolsky, Mathison, Flores, 1986] was concerned with attitudes of seventh and eighth grade students using the curriculum. The report indicates that a majority of students indicated use of math outside class and disagreed with a statement indicating math was not needed for jobs outside of science and engineering. Students using Transition Mathematics (TM) responded more favorably than comparison students to an item asking about the enjoyment of working word problems. However, the study does indicate that the profiles of responses show a negative shift on the part of comparison students to word problems and not much change in response patterns on the part of TM students. Hence, "if TM is effective in motivating mathematics learning through problem solving, this effect may be reflected in simply countering negative attitudinal influences" [p. 51].

Also of interest is the fact that when students were asked to comment about the text, responses indicated good explanations, problems difficult but fun, more homework was required than they liked, and some indicated that it was too fast-paced.

The previous discussion about attitudes toward mathematics suggests that there may be a relationship between attitudes and continued course-taking. It seems reasonable to consider just what are the enrollments or anticipated enrollments in higher level math classes. Nicholson [1986] writes that, for females, "participation in math and science -in education and employment - remains disproportionately low. For girls from minority and low-income backgrounds, the problem is especially acute" [p. 1]. Further, she indicates that "the junior high/middle school years are the critical period when patterns for dropping out of math and science become entrenched" [p. 2]. Brush [1979] reports that students have ambitious ideas about continued mathematics study with boys planning to take more mathematics than girls, even by the seventh grade.

Armstrong [1985] reports on the Women in Mathematics National Survey conducted by the Education Commission of the States. In 1978, 1,452 thirteen-year olds in eighty-two schools and 1,788 twelfth-graders in seventy-one schools were surveyed on a variety of factors relating to participation and achievement in mathematics. The survey included both males and females, but for present purposes, the results for females are of greater interest. For thirteen-year old females, results for the number of math courses they anticipated taking before leaving high school are as follows: none (2.7%), one (4.4%), two (18.9%), three (22.5%), and four (50.4%) [1978 figures]. Although more males than females expected to take one year of high school mathematics, the results for two, three, or four years of math were not significantly different.

Concurrently, the Women in Mathematics National Survey determined actual enrollment in various math courses by twelfth-grade students. In terms of the percentages who were taking or had completed various courses, the following results were reported for females: algebra I (78.5%), geometry (55.3%), algebra II (42.2%), precalculus (18.0%), calculus (7.2%), and computer programming (13.3%). Of these courses, the difference in the percentages of males and females was significant only for algebra II. Although differences in percentage participation between the genders were not significant for precalculus or calculus, the differences in terms of actual enrollment corresponded to a three to two ratio in favor of males. These results suggest that differential course-taking patterns are not evident until about the level of second-year algebra. At that point, the differences in the number of males and females taking advanced math courses begin to be significant, with higher numbers of males.

Fennema and Carpenter [1981] concur and indicate few differences in course-taking between males and females in the early years of the high school math sequence. Their figures of female math participation, based on the second National Assessment of Educational Progress, report that 74% of seventeen-year old females had taken at least one-half year of algebra I. For geometry, algebra II, and precalculus/calculus the figures are 51%, 36%, and 3%, respectively.

Data from the 1986 Fourth National Assessment of Educational Progress (NAEP) again provides some information on course-taking patterns. NAEP reports the percentage of seventeen-year olds for whom a particular course is the highest level of mathematics taken. For females, 18% reported algebra I as the highest math taken. For geometry, algebra II, and precalculus/calculus, the figures are 18%, 40%, and 5%, respectively. Because these are figures for juniors, it is possible that percentages might increase if students pursue mathematics in the twelfth grade.

Some information is available on differences in course-taking by race or ethnic group. Sells [1980] reports that in 1978 in a California high school, 72% of white students were enrolled in math courses leading to calculus. The corresponding percentages for Hispanics and Blacks were 25% and 20%, respectively. Nicholson [1986] uses 1981 SAT data to report the percentage of females of various ethnic backgrounds who had taken four or more years of mathematics. Those results are as follows: white females (51.9%), Black females (42.1%), Mexican-American females (35.4%), and

Puerto-Rican females (36.4%).

MacCorquodale [1988] provides additional information on course-taking patterns of Mexican-American females. She collected questionnaire data from high school and junior high school students in six schools in southern Arizona. She obtained 1,589 responses from Mexicans or Mexican-Americans and 476 responses from Anglos. (These numbers include both males and females.) Her data reveal that, for this sample, Mexican-American females generally take fewer math courses than Anglo females. Further, when investigating the percentages of females who have taken the first three college prep high school math courses, the differences between Mexican-American females and Anglo females are as follows: algebra I (42.1% vs. 59.3%), geometry (17.0% vs. 22.5%), and algebra II (15.0% vs. 13.1%). Of these three, there was a slightly higher percentage of Mexican-American females in algebra II in this sample.

In summary, these studies suggest that sex and ethnicity do play a part in attitudes toward mathematics and in decisions relating to mathematics course selection. Generally, females tend to have more negative attitudes toward learning mathematics. Further, enrollments at higher levels of mathematics tend to be less for females than for males and may be even lower for minority females. These trends are of concern to METRO personnel and have influenced the METRO mathematics program.

EVALUATION DESIGN

The evaluation was designed to obtain information on the effectiveness of METRO from a variety of sources: from the girls, from parents, from advisors, from a few METRO graduates now in high school, and from observation of the program in action. In addition, it seemed desirable to obtain some comparison data from a representative sample of the schools served by the METRO program. If changes in self-esteem or in attitudes are observed at the end of the program, can they possibly be attributed to the influence of METRO or are they simply a result of maturational effects occurring over the summer? Hence, to provide some perspective on interpreting results, a decision was made to collect data from a few of the schools receiving the METRO recruitment presentation.

The method for collecting data will be discussed first. Then, there will be a brief discussion of the commercially available instrument used to assess self-esteem.

METHOD

The schools from which data were collected were not selected randomly but were selected with certain criteria in mind. There was a desire to have both public and private schools with populations that were predominantly Hispanic, predominantly Black, and mixed ethnically/racially. Because the METRO director was familiar with the various schools, she suggested sites for possible data collection. While arranging time for the program presentation, she attempted to secure permission to solicit the additional information desired by the evaluation. At five of the six desired sites, permission was granted; however, it was not possible to secure permission to collect the desired information at a public school with a mixed population. Table 1 (Appendix A) provides the ethnic mix and relevant characteristics of the schools included in the sample. As seen there, the private school with a mixed population was extremely small.

During the Spring 1988 recruitment presentations at these five schools, this evaluator administered questionnaires and the Coopersmith Self-Esteem Inventory (SEI) to all the sixth and seventh grade girls who heard the METRO presentation. At four of the five schools, this amounted to all the sixth and seventh grade girls present that day at school. At school D, only the average to above average sixth and seventh grade girls were sent to hear about the program. At the first administration, at school D, it became apparent that having girls read the questionnaire items and then respond required more time than was allotted. Hence, at all other administrations, the questionnaire items were read aloud. The items on the Coopersmith Self-Esteem inventory were read aloud at all administrations.

A copy of the questionnaire administered in the Spring can be found in Appendix C. Information was solicited on which aspects of the program the girls thought they would like or dislike, on attitudes toward school in general, on attitudes toward mathematics, and on anticipated math course selection.

During Fall 1988, the same five schools were revisited by the evaluator in order to administer the questionnaire and SEI again. This time, in order to sample the same girls, both forms were administered to seventh and eighth graders. The numbers of girls participating in the fall administration are also included in Table 1. Table 3 contains the number of girls who were present for both the spring and fall assessments.

The questionnaire used during the fall visit is provided in Appendix C. Essentially, it is a modification of the spring questionnaire. The items relating to attitudes toward mathematics and to anticipated math course selection are identical to those on the spring questionnaire. Obviously, the items specifically relating to METRO were no longer appropriate.

At the beginning and end of the METRO program, the participants were administered the Self Esteem Inventory. In addition, at the beginning of the summer, a questionnaire that was essentially the same as that used during the spring visits to schools was administered to program participants. A modified version of this questionnaire was administered at the end of the program. Copies of both the pre-program and post-program questionnaires can be found in Appendix C. The number of METRO participants completing the pre and post administrations is reported in Table 2 (Appendix A), along with the racial/ethnic mix at METRO. Table 4 contains the number of participants who were present for both the pre and post assessments

Several additional pieces of information were collected at the end of the METRO program. An open-ended questionnaire was administered to program participants in an attempt to secure comments related to the different classes which the girls attended. A copy of this questionnaire can be found in Appendix C.

The adult advisors were asked to complete a form for each of their advisees. The purpose for obtaining this information was to assess what differences in the girls were marked enough to be observable by someone working closely with them in a one-to-one relationship. A copy of the advisor form can be found in Appendix C.

In an attempt to assess the perceptions of parents about METRO's impact, parents were asked to complete a survey at the evening graduation ceremony on the last day of the program. The form was available in both English and Spanish; a Spanish form was necessary as many of the parents have limited English proficiency. A copy of the Parent Questionnaire can also be found in Appendix C.

Although the major focus of the evaluation was the Summer 1988 program, a desire existed to obtain some information on any long-lasting effects of METRO. Seven graduates of METRO, finishing ninth or tenth grade in June 1988, had been hired to serve as counselor assistants during the summer. In June, before the program began, these girls were interviewed by the evaluator to determine what impact, if any, they thought METRO had had in their lives or on their academic choices in high school. The interviews were conducted individually and were tape-recorded. A copy of the interview guideline can be found in Appendix C.

In addition to the information collected via questionnaires, the program was observed in action two full days during the summer. METRO divides each of the two grades into two levels, A and B, in order to keep class sizes at a reasonable level. Decisions on sorting the girls into the two levels are based on achievement, with group A being the lower group at each grade level. During one of the visits, the evaluator attended classes with 7A and during the other visit with 8B. A summary of the observations made during these visits can be found in the section of this report entitled "A Typical Day at METRO." Copies of the daily schedule and of the student guidelines can be found in Appendix B.

INSTRUMENTATION

The Coopersmith Self-Esteem Inventory is a fifty-eight item inventory consisting of a series of simple statements. Fifty of the items measure self-esteem. To each statement, girls respond "like me" or "unlike me." In addition to obtaining a total measure of self-esteem, measures are available along four sub-scales: general self, social/peers, home/parents, and school/academic. Each response that is in the desired direction is scored two points. The total self-esteem score ranges from 0 to 100, the general self from 0 to 52, and each of the other sub-scales from 0 to 16.

There is also an eight item lie scale built into the inventory which serves to measure defensiveness on the part of respondents or to identify girls who respond in the way they think they should. The higher the lie score (on a scale from 0 to 8), the more defensive is the response pattern.

A factor analysis study by Kokenes [1978] reported that factors loaded into the various areas of the inventory in the manner to be expected if the inventory truly measures the desired constructs. She concludes that "the factors which emerged in this study confirm the construct validity of the subscales proposed by Coopersmith as measuring sources of self-esteem" [p. 154].

Test-retest reliability was found by Coopersmith to be .88 for a group of thirty fifth-grade children after a five-week interval. With a different group of fifty-six children, reliability was .70 after a three year interval. In addition, internal consistency coefficients for the test, determined by using Kuder-Richardson (K20) estimates of reliability, are .89 at the seventh grade and .90 at eighth grade. Hence, over a fairly short time period, one would generally not expect to find major changes in the self-esteem scores unless real changes in self-esteem had occurred.

The test manual provides means and standard deviations by grade, race, and ethnic group. Normative percentiles also provide a way to compare METRO girls with cohorts nationwide.

These comparisons can be found in a discussion of the self-esteem results.

A TYPICAL DAY AT METRO

This section provides a snapshot of the activities at METRO on two arbitrarily chosen days. The actual dates selected for observation were a function of the evaluator's schedule during the five week period in which METRO was in session. However, Wednesdays were excluded from observation because of weekly excursions.

While it is the belief that the activities on the observed days are generally representative of the program in operation, it should be remembered that these comments and observations are from only two of the nineteen non-excursion days. Hence, it is always possible that these days may have been atypical in some respects.

As indicated before, the daily schedule can be found in Appendix B. The observations below record the day's activities as they occurred.

July 14, 1988

9:45 - 10:00 Staff Meeting

The meeting is run by Natalie Jakucyn, the program director, and begins with congratulations to the staff members for the smoothness of yesterday's outing to the Kane County Fair. No major problems occurred.

Then Natalie informs the staff that a priest will be available during the day for anyone who wants to attend confession. Girls will have the opportunity during Character Development class to have their confession heard.

The last announcement is that the speaker for the graduation ceremony on August 5th has been confirmed. She is an engineer with Commonwealth Edison and President of the Society of Hispanic Engineers. Natalie is very excited about securing this individual for graduation.

GROUP 7A

Group 7A consists of thirteen girls; of the two seventh-grade groups, Natalie indicates that this is the lower of the two in achievement and motivation. Prior to the first class, girls are engaged in a variety of activities from playing games (Mastermind, Upwords) to sitting and talking to writing on the chalkboard.

10:00 - 10:35 Communication Skills Class

The room in which this class occurs is decorated with a number of items related to English and/or grammar. In particular, there are posters about reading, about the parts of a letter, and about the different styles of writing a letter (business, personal, etc). There are also posters dealing with planning ahead and studying to be smart.

(To understand the initial class discussion, it is important to recall that yesterday's activity was a full-day excursion to the Kane County Fair.)

At the beginning of class, the teacher asks several questions:

> Did anyone talk to the media yesterday?
> What is the media?
> Who talked and what about?

Interactions between the teacher and the girls occur as definitions of the media are given. Then, one of the girls explains that a reporter asked her if the fair was fun and which animals she liked. She continues by saying that the fair was exciting and that she liked the pigs and the horses.

The teacher then continues the discussion by asking two additional questions:

> Why do you suppose reporters went out there?
> What did you think about the smell?

Girls offer a few suggestions in response to the first question and a few opinions about the second.

As discussion about the fair wanes, the teacher shifts the focus by determining whether girls are ready to give the how-to speeches that were to have been prepared for today. Five speeches are on today's schedule.

The first girl is introduced by the teacher and given a round of applause. Her topic is "How to make brownies." She begins by giving a list of ingredients and then goes through the directions. At the end of the speech there is another round of applause which is then followed by a critique of the speech. During this period, both positive and negative comments are made and suggestions for improvement are given. In particular, the girl is encouraged to talk slower as she talked too fast during the speech presentation.

A second girl is introduced and given a round of applause before presenting the topic "How to make bracelets." After the speech, she fields questions about cost and listens to requests from girls who would like to have a bracelet made. During the critique, positive comments are made about the direct order she used in presenting the topic.

The topic of the third speech is "How to plan a party for the family." Again, there is a round of applause at both the beginning and end of the speech. After this speech, the teacher asks other girls a number of questions to assess whether or not they were listening during the speech.

The fourth speech is being done by a girl who had been scheduled to deliver her speech tomorrow. The teacher reminds the girls that such a speech is being delivered extemporaneously. The topic this time is "How to apply make-up." This girl, in particular, does not appear to use standard English while delivering her speech.

The last speech of the day is on "How to iron effectively." A shirt, an iron, and an ironing board are used as props during the speech.

10:37 - 11:12 Mathematics

This room is decorated with a number of posters appropriate to the class topic. There are posters about infinity, polyhedra, the metric system, and instruments of math and science.

Class starts with a quiz on the overhead projector; the quiz is reproduced below. Girls are reminded not to look at the answers of their neighbors.

1. 24.53 This number is between what two whole numbers?
2. Write down all the whole numbers.

3. 1234.67
    a. Which digit is in the tens place?
    b. Which digit is in the hundredths place?
    c. Which digit is in the ones place?
    d. Which digit is in the hundreds place?

4. 8934.435
    a. Round to the nearest tens place.
    b. Round up to the hundreds place.
    c. Round down to the ones place.

5. Find a number between 6.7 and 6.6 .

6. Put in order from smallest to largest.
   (A set of numbers is given.)

The quiz is followed by a discussion that the best way to learn is to make mistakes and that it is okay to make less than 100%. The teacher also states each girl's name to see if she has finally learned all of them.

The topic for the day is Lesson 1-5 in Transition Mathematics, a lesson on negative numbers. While a high school assistant circulates around the room to check that assignments had been done, the class reviews the answers to the assignment. Girls are reminded that the proper way to read -4 is "the opposite of 4." The teacher states that care must be taken when reading negative numbers because it is not appropriate to use the word "negative" when reading -x.

This discussion is followed by boardwork. Two girls put number lines on the chalkboard and then there is a class discussion to correct errors. The girls have some problems with arranging the negative numbers in the proper sequential order.

The teacher appears to expend a great deal of energy to keep the attention of the girls as they appear somewhat restless.

11:14 - 11:49 Character Development

During this class, there is a priest available to hear confession for those girls who wish to take advantage of the opportunity. A sign-up sheet establishes the order for attending confession.

The period begins with an orally dictated quiz, reproduced below.

1. Give the definition of simplicity as we learned it in class. Give an example.
2. Whom do we study for and why?
3. Why did God make us social?
4. Can we show our love for God by being friends?
5. What can we do for God to show Him we love Him?
6. What is the greatest part of going to confession?
7. Give a definition of modesty.

After the quiz there is a review of the definition of simplicity. Some of the definitions given by the girls include the following: telling the truth in a nice way even if someone would not want to hear it; not being overly complimentary; not always telling how awful something really is; and not needing tons of things.

There is also a review of the Ten Commandments and their meanings. Girls express the views that God provided the commandments to protect us, to make us happy if we abide by them, and to provide a way to show we love Him by not hurting others. For those who do not have the Ten

Commandments, there is a natural law which serves as a person's conscience; it is the goodness that God has instilled in each person.

For homework the girls are to write the first five commandments and give a definition for each. They are also to write comments for any that are not understandable or do not seem right.

11:51 - 12:27 Science

Class begins by having students take out the homework from Tuesday's lab, a discussion of change of states. The teacher reminds the girls that the material had changed from a solid to a liquid to a gas. Then important points from that lab are reviewed: in a solid, the molecules are close together; in a liquid, the molecules move farther apart, so the material starts to spread out; in a gas, the molecules are even farther apart.

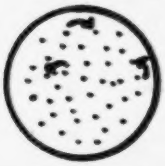
Then there is a quiz, reproduced below, dealing with the above information.

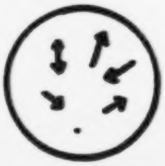
I. True or false

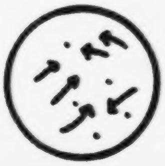
1. Molecules can move in solids, liquids, and gases.
2. Molecules are the farthest apart in a gas.
3. Molecules move fastest in a liquid.
4. All matter takes up space.
5. Solids and liquids have mass but gases do not.
6. Ice is a solid state of H_2O.
7. Steam is a gaseous state of H_2O.

8. Changes in state are really changes in the way molecules move.

II. Label the diagrams below with the state that it represents.







III. Describe how you would know that a frozen cube of vinegar can exist in all three states. Use the words change of state, molecules, solid, liquid, and gas in your description.

After the quiz, there is a discussion of elements and atoms. Students have to read an article on the subject provided by the teacher. The girls are to underline the important sentences as the passage is read aloud. There is also a discussion of appropriate behavior while someone is reading, namely that others should follow along with their eyes.

For homework, students are to read the last two of the seven paragraphs on their own and complete the six questions at the end of the passage.

Some girls appear to have a slight attitude problem and want to do something else during class. Both gum and magazines are taken from several girls, resulting in a minor bout of pouting. It should also be noted that this teacher does not appear as bubbly or energetic as the math teacher but appears more stern and serious.

12:50 - 1:45 Fine Arts

A number of activities are occurring. Some girls are completing a prior project on block printing. On a square of cardboard, pieces of string are glued to spell out the reflection image of some message. After painting the board and string, a piece of card paper is pressed against the painted board and a print is made. Girls are permitted to print as many cards as they desire.

Once girls finish this, they are to start working on their goal banner. This banner is to be a personal statement of future goals and is to utilize any of the crafts learned during the summer program. This is a major project as these banners are to hang in the auditorium during the graduation ceremony.

2:00 - 2:50 Sports

On this particular day, girls learn the rules of soccer with considerable practice in passing and dribbling. Groups are formed to provide continued practice with a variety of partners.

Again there are some attitude problems. At the end of the session, the instructor talks with the girls about the problems and about what remedies should be used. She expresses concern that they do not seem to want to listen to her.

July 19, 1988

9:45 - 10:00 Staff Meeting

Staff members are made aware of some friendship problems among the girls and that some comments are getting out of

hand and cruel. One girl has received a note stating "We don't want you in METRO anymore." Natalie asks staff members to bring this issue up during advising and help students be attune to kindness. Advisors should focus on comments that indicate which girls are not liked by the others.

There will be a meeting on Monday with a priest about pictures of METRO and various social concerns.

There is also a problem with underage visitors to METRO. The purpose of visits is to expose other girls to METRO. This purpose does not work well when visitors are young children.

The last item of business is a brief discussion of plans for tomorrow's trip -- a visit to the Museum of Science and Industry, attendance at a Grant Park concert, and a boat ride on Lake Michigan. Depending on the weather, the group will follow plan A, B, or C.

GROUP 8B

10:00 - 10:54 Fine Arts

Girls are working on a project involving cans or bottles. Pieces of masking tape are torn into very small pieces and then layered on the outside of the container. When the container is completely covered, girls polish the tape with shoe polish. The texture of the masking tape picks up the polish in interesting ways.

Upon completion of this project, girls begin to work on planning their goal banner. Once again, the goal banner is a major project as it is to reflect the highest possible

aspirations of the girls. The banner is to be mapped out first on newsprint and then transferred to muslin.

Throughout the room, articles created by the METRO participants are on display. Four main projects are planned: tissue art, printing cards, covering a container with tape and then polishing it, and the goal banner.

These girls work much more seriously and quietly than do the girls in 7A. Although talking and sharing of personal experiences occurs during work on projects, greater order clearly prevails.

11:04 - 11:58 Sports

Once again, soccer is the sport of the day. Girls practice dribbling in a race format with girls in two lines. After this practice, girls are split into two teams for an actual game. The two high school assistants serve as team captains and make the choices for the teams.

Throughout the play, the girls seem to be good-natured and sportsmanlike. There is much more involvement by all the girls, without the discipline problems of Group 7A.

12:30 - 1:06 Character Development

The class begins with a recap of yesterday's discussion on chastity and purity. Chastity had been defined as the moral virtue which controls our inclinations toward pleasures of the body.

Then there is a discussion on the reasons for bringing chastity into relationships. There is a frank discussion on why the Bible reserves sex for marriage. In particular, it is a sacred act for two people who are in love. Further, there are two ends to marriage -- the unity of two people and the creation of children. Outside of marriage, sex is not good because these two ends are not met. There is also a discussion that the responsibility falls on the woman because she is the one to say "yes" or "no" and she can lay down the rules at the beginning of a relationship.

There appears to be some embarrassment on the part of the girls but the class participates fairly well in the discussion. Girls ask why brothers and sisters are not allowed to marry. The teacher indicates that there might be a problem with genes when close relations marry. Girls also ask whether French kissing outside of marriage is a sin. The teacher responds by saying that it is an intimate act and can suggest things that you might not want to suggest. In addition, such kissing can arouse passion.

Another question for discussion relates to the ways that modesty exists in day to day living. In addition to mention of the laying down of rules, there is mention of wearing appropriate clothes that are not too tight. Mini-skirts create problems in sitting, moving, bending, and so forth. One can also respect other people's privacy, including the privacy of siblings.

The final discussion relates to tools that can be used to obtain purity and modesty. Human tools include choosing dates wisely, dressing properly, not using foul language, and not going around with the wrong people. Divine tools include praying and going to church, calling on the Holy Spirit, and praying for Mary to intercede for you as she is the most pure woman who has ever lived. Further, if a person "blows it," they should go to confession and get forgiveness.

Class ends with a quiz, reproduced below.

1. Who is the Holy Spirit?
2. From whom does the Holy Spirit proceed?
3. Is the Holy Spirit equal to the Father and the Son?
4. What does the Holy Spirit do for the salvation of mankind?

1:08 - 1:44 Science

Girls are to spend the class period making mobiles by using straws, strings, and cut out construction paper figures. The center straw is anchored in play-dough or some type of clay. Other straws are used as cross beams. Girls work to position the hanging paper pieces from the two ends of the horizontally-placed straw so that the figures balance the straw.

Throughout, there is discussion of uses for such mobiles as possible table decorations. The hanging pieces can relate to the theme of a party and can be made from items around the home. During the entire period, girls work diligently on this project and help classmates as necessary.

1:46 - 2:22 Communication Skills

Class begins with a review of the previous day's activity, creating sentences using specific words. Today the group is going to write a news story. First, differences between news stories and book stories are discussed. The teacher reminds the girls that news stories try to answer questions of who, what, when, where, how, and why. The news story created by the girls and reproduced below is a report on the speeches done earlier in class.

> With unparalled persuasive talent, METRO's 8th grade class delivered convincing speeches. They gave speeches to convince people to do things. These speeches were given during communication skills class last week at METRO.
>
> METRO is a summer achievement program for girls entering the 7th and 8th grades. At METRO they learn academics, sports, and go on excursions.
>
> The speeches were about persuading people to do things. Some speeches persuaded the audience to "say no to drugs," stop abortion, stay in school, and learn to read. The METRO 8th graders delivered their speeches to their classmates. The following are some examples of what students said in their speeches:

Name	Topic	Quote
-----	"Say No to Drugs"	"Don't kill yourself and don't hurt your family and friends, 'Say No to Drugs'."

Girls are to finish the story for homework. They are reminded to consider the outline used for their speeches and to use that outline for the news story. The outline should contain the following parts.

Intro
Body
  1. METRO
  2. What speeches were about
  3. Who delivered them and whom they were

delivered to

They are also urged to use examples to support their statements.

During the writing of the news story, the teacher gives lots of positive reinforcement and encourages interaction between teacher and student and between students.

2:24 - 3:00 Mathematics

Students are working on Lesson 4-3 from Transition Mathematics, a lesson on translating algebraic expressions. The regular teacher is absent and so the class is being taught by the program director.

Girls check their answers with an answer key on the overhead projector. During this time, the instructor walks around the room to determine the most commonly missed problems. These become the problems for class discussion.

The teacher is very energetic and works hard to keep the girls engaged. Throughout the period, lots of special attention is given to individual girls and to the group as a whole. This attention is reflected in the following sample of comments:

> I'm killing your lever.
> (This comment is in response to knocking over one of the straw mobiles sitting on the table.)
> Don't hold your head like that, you'll get zits.
> I've got more energy than all of you put together.
> Where are your glasses?

It is very apparent that the instructor cares about the girls and that they respond positively to this care.

RESULTS AND DISCUSSION

This section analyzes responses to questions in the evaluation instruments that provide information on areas of interest to METRO personnel. There are some items in the evaluation instruments which are not discussed in this report.

The results are organized and reported in seven parts: results of the METRO recruiting presentation, results of the self-esteem inventory, advisor perceptions of METRO's effects on the girls, parent perceptions of METRO's benefits, overall comments from girls about METRO including comparisons of the different classes and program components, attitudes toward mathematics and anticipated future math course selections, and results of interviews with METRO graduates now in high school. All tables referenced in this section of the report are located in Appendix A.

METRO RECRUITING PRESENTATION

For most girls, the first exposure to METRO occurs during the recruiting presentation in the schools. How effective is that presentation? Do girls want to attend the program? If so, what program components appear to be the most appealing? This section provides responses to these questions and yields insight into how the program is perceived by potential participants.

The spring questionnaire, administered after the METRO recruiting presentation, asked girls to respond "yes," "no," or "not sure" to the question "Would you like to attend METRO in the summer?" Girls were then asked to provide a reason for their response. Table 5 contains the reasons supplied by the girls at the five comparison schools, reported by school and grade level. It should be noted that some girls supplied more than one reason.

For sixth-grade girls, the top two reasons for wanting to attend METRO were "like to attend, interests me, good program" and "will be fun, exciting." For seventh-grade girls, the same two reasons were at the top of the list, but with the order reversed.

Beyond the top two reasons, there are some interesting differences in the response patterns at the two grades. More seventh-graders thought they would meet new people or had friends or relatives who had attended the program. A real difference is that seventh-graders perceived METRO as a means to improve skills, improve grades, or get help with studies. No sixth-graders at these five schools expressed the belief that METRO would improve skills. However, a few sixth-graders, as well as seventh graders, thought METRO would help them in the future or with school; it is highly possible that this response was meant to be equivalent to the response "improve skills, improve grades, help with studies."

For students who did not want to attend METRO, the predominant reason was the anticipation of being out of town. For students who were not sure if they wanted to attend, the primary reasons were "might be out of town," "parents might not allow or have other plans," or "might be going to another program."

Students were also asked the following question: "If you would like to attend METRO in the summer and if your application is accepted, do you know of any reason why you would not be able to attend? What would that reason be?" Responses to this question mirrored the reasons supplied by girls who answered "no" or "not sure" to the question discussed above. Students thought they might be out of town, they might be going to another program, or their parents might not allow attendance. Money concerns were expressed by about fourteen percent of the girls.

At the beginning of the METRO program, participants' perceptions have been guided primarily by the recruitment presentation that occurred at their school and any information gleaned during the interview process required for acceptance. To gain insight into the perceptions of girls actually admitted to METRO, participants were asked on the first day of the program to provide reasons to the question "Why did you want to come to METRO?" Responses can be found in Table 6. Again, some girls provided more than one response. It should be remembered that entering seventh graders correspond to the spring sixth graders and entering eighth graders correspond to the spring seventh graders.

A glance at Table 6 shows a fair degree of similarity among responses for METRO participants at the two grade levels. For both grade levels, the top two reasons for wanting to attend the program were "will be fun, exciting" and "will meet new people, friends or relatives go there." Both grade levels expressed a view that they would learn things or that the program would be challenging. Interestingly, for METRO participants it is the younger age group that perceives METRO as a way to "improve skills, improve grades, or get help with studies."

Table 7 compares the top reasons for wanting to attend METRO for both comparison students and METRO participants. For METRO participants, the top two reasons at both grade levels were supplied by a little more than one-third of the girls. For the comparison girls, the top reasons were supplied by less than twenty percent of the girls. Another interesting difference is that the percentage of METRO participants who expect to learn things through participation in the program is much higher than the corresponding percentage of comparison students. Overall, there is greater agreement about reasons for attendance among METRO participants. This is not unexpected and, in fact, is desirable if METRO is to blend the girls into a cohesive group that can function efficiently in achieving goals.

Another means to determine the features of METRO that appeal to girls during the recruiting presentation is to focus on the various program components. After the recruiting presentation and on the first day of the METRO program, girls were asked "Which of the following parts of the METRO program do you think you might like the best?" and "Which of the following parts of the METRO program do you think you might like the least?" The program components were listed and students were permitted to check more than one choice per question. Table 8 gives the results for girls at the comparison schools and Table 9 provides similar results for METRO participants.

In general, the academic components were neither highly liked nor highly disliked. Indeed, the percentages of girls who anticipated liking math, communication skills (English), and science were lower than those reported by Goodlad, although Goodlad's results are for an entire school population and not just for females. An interesting exception occurred at School C, where about eighty-five percent of the girls anticipated liking math and over sixty-five percent anticipated disliking science. There was also a high anticipation of dislike of science at School D.

Both field trips and dance and design had very high "like" percentages and very low "dislike" percentages. It would appear that these two program components are very appealing to the girls. Team sports also had a fairly high "like" percentage, with approximately three-fourths of all girls expecting to like this component.

The career speakers and the individual counseling sessions are two very important aspects of the METRO program in terms of widening horizons and helping the girls think about their futures. However, these two program components were not given a high "like" rating. Perhaps this can be attributed to the fact that the girls did not have a clear perception of the function of individual counseling because this was not emphasized during the presentation. Girls could only compare METRO's individual counseling with school counseling sessions.

The percentages of "like" for the academic program components are in agreement with students' rankings of the four basic subjects. On the spring questionnaire and the beginning METRO questionnaire, girls were given six blanks on which to rank their school subjects from the one they liked the best to the one they liked the least. By assigning each blank a number from 1 (like the best) to 6 (like the least), a mean ranking for each of the four basic subjects was obtained. Occasionally, girls listed more than six subjects; if one of the four basic subjects (math, science, English, or social studies) was listed last and there were more than six subjects listed, then the basic subject was given a six for the purposes of determining a mean rank. Results of these rankings can be found in Table 10.

The results of the subject rankings generally confirm the "like" percentages for the academic program components found in Tables 8 and 9. For instance, a high percentage of girls at school C anticipated liking math and disliking science. At this school one would expect, and indeed one finds, that math has a low mean rank (indicating like) and science has a high mean rank (indicating dislike). Rankings at the other schools and at METRO appear to agree with the responses given for the academic program components. That is, most of the mean rankings are in the range from 2.5 to 4.5, rather than being close to 1 (like the best) or to 6 (like the least).

The results from the like/dislike expectations of the program components and the school subject rankings suggest that the academic features of METRO are perceived in much the same way as the similar courses in school. This is to be expected. However, if the academic portion of METRO is viewed as one of its strengths, then care needs to be taken to provide the students with a clear picture of the academic components and how they are similar to or different from the corresponding school courses. Otherwise, girls only have their school experiences to use in deciding whether METRO can be of help to them. This may mean that girls who have disliked academics in school, but who have the potential for success, are turned off by the program description. This would be unfortunate as some of these girls are the very ones METRO is trying to reach.

A final aspect of the recruiting presentation is the fact that METRO emphasizes that girls will make new friends. Table 11 provides responses to the question "Do you think you will make new friends through METRO?" Slightly more than three-fourths of the comparison girls responded "yes." The percentage of METRO participants who responded "yes" was ninety-five percent. The higher METRO percentage may be due to the chance that girls had to begin making friends in the first half hour of the first day of the program, before the questionnaire was even administered.

In summary, it would appear that the recruiting presentation does present the program as fun and exciting. Girls perceive aspects such as field trips and dance/design to be fairly appealing. The academic aspects of the program are not as appealing to the girls to the extent that one might want or expect considering the heavy emphasis that academics have in the overall program. Not enough girls wanted to attend METRO for academic reasons and the academic components were not expected to be the components that girls would like the best. This suggests the need for a careful examination of the recruiting presentation so that the academic aspects of the program are highlighted and distinguished from the corresponding academic programs in school. This may help ensure that the girls who actually attend METRO are prepared and willing to concentrate on academics. Otherwise, students may be expecting more "fun and games" and may be disappointed at the amount of "schoolwork" that is incorporated in the program.

SELF-ESTEEM RESULTS

Prior to beginning analysis of the self-esteem results, a decision was made to eliminate certain responses from consideration. School A was eliminated because of its small size. Also eliminated were any girl responses in which the lie scale measure was six or higher on either of the two administrations (spring/fall or pre/post). By eliminating these measures, means should be more reflective of the various populations and should not be inflated by girls responding in a manner designed to please the evaluator. Because the population at each of schools B, C, D, and E is predominantly one ethnic group, responses by participants who were not of the predominant ethnic group were also eliminated, even if the lie scale score was less than six. Thus, results for these schools are results for a particular ethnic group, Black (schools C and E) or Hispanic (schools B and D).

Table 12 gives the number of respondents, by grade level and racial/ethnic group, after the elimination of responses according to the criteria discussed above. The numbers in this table reflect the number of comparison girls and the number of METRO participants for whom both a spring and fall or a pre and post measure, respectively, are known. Self-esteem measures for these girls are the only measures subjected to further analysis.

One of the questions of interest is whether there are differences in either total self-esteem or area-specific self-esteem between Blacks and Hispanics. Table 13 provides the means and standard deviations for the self-esteem measures by grade level and by racial/ethnic group for METRO participants. By using only METRO participants, it is hoped that some background variables can be controlled, particularly motivation and overall achievement levels as these should be comparable for girls actually admitted to the program. Because self-esteem is known to vary by grade level, results for seventh and eighth graders, by racial/ethnic group, were not aggregated.

For each pair of Black-Hispanic means found in Table 13, a t-test for the difference between the means was conducted. The t-values are also reported in Table 13. None of the differences in means were significant at the .05 level.

Although differences between means were not significant, an inspection of the mean values shows some interesting trends. At the eighth-grade level, Hispanics had lower mean values on all measures except the home/parent subscale on which the mean for Hispanics was higher than that for Blacks. At the seventh-grade level, the same general pattern is evident, except that the total self-esteem means were roughly equivalent for the two groups. Also of interest is the fact that the self-esteem measures for the eighth-graders were lower than those for the seventh-graders on all scales with one exception -- on the school subscale the mean for Black seventh-graders was lower than that for Black eighth-graders.

It may be helpful to compare the METRO measures in Table 13 to some normative values provided in the Coopersmith Administration Manual. In the manual, one study reported a mean for Blacks (both male and female) of 64.6 (s.d. = 14.2) and another study reported a mean of 73.6. These results were for males and females combined over several grade levels. Because Hare [1985] found no sex differences in self-esteem for Blacks, it is reasonable to assume that these measures can be compared with the METRO data composed only of female responses. The METRO results would appear to be in the proper ballpark.

For Hispanics, one study reported a mean of 63.6 (s.d. = 13.6) for a combination of males and females in grades 3 through 8. A second study reported a grade 6 result of a mean of 61.8 (s.d. = 14.2) and a grade 9 result of a mean of 61.2 (s.d. = 18.6). Again, the METRO results seem to be in the proper ballpark, although perhaps the seventh-grade results for Hispanics are somewhat high.

It seems reasonable to ask how the responses of the METRO girls compare to the responses of girls from the sample of comparison schools. Table 14 contains the means and standard deviations for the self-esteem measures for the sixth-grade comparison girls; Table 15 contains the same values for seventh-graders.

One-way ANOVAs were used at each grade level to compare the school means for the total self-esteem measure. At the sixth-grade level, no significant difference between the means was found, even though the total self-esteem measure for school E was quite a bit lower than the corresponding measure for the other schools.

At the seventh-grade level, there was a significant difference between the school means for total self-esteem. The difference appears to be due to the much higher self-esteem for school C. Both schools C and E are predominantly Black, so there seems to be an interaction of race and school, with the private Catholic Black school having higher measures on all scales. Measures at the two Hispanic schools (schools B and D) were roughly equivalent to each other.

The differences in self-esteem measures between schools makes it difficult to aggregate results to make global comparisons between METRO and the comparison schools. However, the self-esteem measures for the METRO seventh-graders are in the same ballpark as those for the spring sixth-graders, if results at school E are not considered. For the METRO eighth-graders, who correspond to spring seventh-graders, comparisons are more difficult. The total self-esteem values for Hispanic girls at METRO were higher than those for the girls at the two predominantly Hispanic schools (schools B and D). The Black girls at METRO had results comparable to those at the predominantly Black Catholic school. Thus, the seventh-grade METRO girls seem to be fairly comparable to those at the comparison schools but the eighth-grade Hispanic girls have higher measures than the comparison group.

To assess the impact of the METRO program on self-esteem, paired difference measures were calculated for the forty-six METRO participants for whom both pre and post measures were available. Table 16 provides the means and standard deviations for the difference scores by racial/ethnic group and by grade level, with differences computed as post minus pre. T-tests were conducted on the means of the differences and these values are also reported in Table 16.

The changes in self-esteem over the course of the program are somewhat mixed. For seventh-grade Black girls, there was a significant increase in total self-esteem, attributed largely to an increase in the general self-esteem subscale. Although differences on the other subscales were not significant, all subscales showed a mean increase from the beginning to the end of the program. For eighth-grade Black girls, there were no significant differences in the self-esteem measures from the beginning of the program to its end, although all measures showed some mean increase.

For seventh-grade Hispanic girls, there were no significant differences in any of the self-esteem measures although there were overall decreases in the measures for total self-esteem, general self-esteem, and home/parent self-esteem. Only the school subscale showed any increase, even though it was not significant. Perhaps the difference in this subscale is due to the focus on academics that occurs at METRO.

It must be mentioned that two of the Hispanic seventh-graders showed extremely large decreases (20 and 38 points) in total self-esteem measures. Because of the small sample, these two results had a major influence on the overall mean difference. Six of the thirteen Hispanic seventh-graders either showed no change or showed an increase in total self-esteem. There were some discipline problems at the seventh grade and one wonders if such problems existed with the particular girls who experienced such large decreases in self-esteem measures.

For eighth-grade Hispanic girls, there was a significant increase in the total self-esteem, again attributed to an increase in the general subscale. All of the other subscales showed a mean increase, even though the results for these subscales were not statistically significant.

To put the METRO changes in perspective, paired differences were also conducted on results obtained at the comparison schools during the spring and fall administrations of the self-esteem inventory. Table 17 presents the means and standard deviations for the various self-esteem scales for sixth to seventh graders and Table 18 presents the same results for seventh to eighth graders.

For the sixth to seventh graders, the total self-esteem and the general subscale showed a significant increase only at school C, a private Catholic school. At school D, a public Hispanic school, there were significant decreases on the total self-esteem measure as well as on the home/parent and school subscales. A look at other values in the table suggests either no change or a decline on many measures, even if the declines were not statistically significant.

For the seventh to eighth-grade results, the only significant increase was on the social subscale, again at school C. None of the other differences were significant. It is interesting that the overall pattern of decreases that occurred for the sixth to seventh-graders did not occur for the seventh to eighth-graders, with the exception of the home/parent subscale.

One other measure of self-esteem, particularly school self-esteem, might be girls' overall attitudes toward school and their plans after graduation. Table 19 contains results on these measures for girls at the comparison schools and Table 20 contains the same results for METRO participants. Most girls reported that they like school. If girls did not answer "yes" to the question "Overall, do you like school?" they were much more likely to answer "not sure" than to answer "no." Despite their attitude toward school, almost all girls expect to graduate from high school.

When choosing among several college options after graduation, a large portion of both comparison and METRO participants expect to graduate from a four-year college, although the percentage of METRO participants choosing this option (about 85%) is higher than the corresponding percentages of comparison girls (58% to 63% overall).

In summary, METRO does not seem to improve self-esteem to the extent that program personnel might wish. Although mean increases were found on both total and subscale measures for all groups except seventh-grade Hispanics, the increases were not always statistically significant. The statistically significant increases occurred only for Black seventh-graders and Hispanic eighth-graders. It is unclear why there should be a racial/ethnic by grade level interaction in the results.

The METRO results are also difficult to interpret when contrasted with the results at the comparison schools. The seventh-grade Hispanic results at METRO were similar to the sixth to seventh grade Hispanic results at comparison schools B and D. Because the sixth to seventh grade Black results at comparison schools C and E were so different from each other, overall comparisons with METRO are difficult. Results at METRO are similar to those at the private Catholic school and much better than those at the Black public school.

Similar problems appear in contrasting the seventh to eighth grade results with the METRO eighth-grade results. Although the METRO Black results appear similar to the results at the two Black comparison schools C and E, the METRO Hispanic results appear to be better than those at the comparable comparison schools B and D.

It should be kept in mind that the samples at each grade level at METRO were fairly small. Hence, results must be more pronounced in order to be statistically significant. Furthermore, the program is of only five weeks duration. Perhaps it is unrealistic to expect drastic changes in all aspects of self-esteem in such a short period of time, regardless of a program's positive features. For many girls, it may be that METRO's impact, if any, is to begin a slow but steady improvement in many of the aspects of self-esteem. Such changes would not likely appear statistically significant after only five weeks.

ADVISORS' PERCEPTIONS OF METRO'S EFFECTS

The advisors are responsible for the regular one-on-one counseling that occurs at METRO. Because of the individualized nature of the advisor-girl relationship, it was felt that advisors could provide a useful perspective on the effects of the program. Consequently, at the end of METRO, advisors were asked to complete a questionnaire for each of their advisees. The results of that questionnaire are found in Table 21. Advisors often provided more than one response to a particular question.

One of METRO's aims is to help girls become more outgoing and more confident in their own abilities. Hence, advisors were asked to respond "very outgoing," "somewhat outgoing," "somewhat shy," or "very shy" to two questions: 1) At the beginning of METRO, how outgoing did this girl appear to be? and 2) How outgoing does this girl appear to be now? On these questions, a positive change is a change toward becoming more outgoing. Advisors reported a positive change for approximately sixty-two percent of the girls. For the remainder of the girls, no change on this personality factor was reported.

Advisors were also asked "What changes, if any, have you noticed in this girl during the METRO program?" The top two reported changes were "opened up, less shy, speaks up" and "friendlier, has made friends, talks with others." These two changes were reported for thirty percent and for twenty-seven percent of the girls, respectively. Three other changes were reported for at least ten percent of the girls: "more confident, more mature, higher self-esteem," "trying to change attitude and learn from situations, learning to cooperate and listen," and "talks about family and goals or things that might be uncomfortable." (Keep in mind that the above percentages are not necessarily mutually exclusive, as advisors may have made more than one of these responses for a given girl.)

Some negative changes were noted. The negative comment "not much, seemed bored, enthusiasm for METRO waned, very dependent" was reported for about twelve percent of the girls.

Advisors were also asked to respond to the question "What has this girl had to say about her experiences at METRO?" The top response, reported for seventy percent of the girls, was "liked it, liked aspects of it, likes people, had fun." The other common response, reported for thirty percent of the girls, was "liked making friends, learned importance of having friends."

For eight of the twenty-nine seventh graders, advisors reported that the girls "learned a lot, learned about values/virtues." For four of the thirty-one eighth-graders, the response was "helped her feel better about herself, be more self-confident, helped change personally and academically." Comments about values and self-confidence are important if they signal METRO's influence in helping girls resist negative peer and gang pressures when they return to their school environment.

The issue of friendship appears again in response to the question "What qualities, if any, has METRO brought out in this girl?" For forty-two percent of the girls, the advisors responded "friendship, learned what it means to be a friend, learned to care about people." For one-third of the girls, the advisors reported the appearance of a particular quality, namely "courtesy, politeness, hope, cheerfulness, kindness, generosity, patience, responsibility, leadership." Although these two responses clearly overshadow all others, two additional responses were recorded for over fifteen percent of the girls: "more confident, more trusting" and "hard worker, disciplined and conscientious."

In summary, from the advisors viewpoint METRO's impact is on helping girls open up, helping them make friends and learn the importance of friendship, and helping them learn to be more self-confident. Growth in these areas is certainly desirable. However, as mentioned in the section on the recruiting presentation, it is unfortunate that few comments are made about academics, especially when one considers the amount of program time devoted to academics.

PARENTS' PERCEPTIONS OF METRO'S EFFECTS

Parents are in a unique position to assess METRO's impact. They have the opportunity to observe their daughters in a variety of situations and for longer periods of time than do program personnel. Hence, it was deemed desirable to obtain parent perceptions of METRO's effects on girls. Consequently, parents were asked to complete a questionnaire, one per family, at the graduation ceremony on the last day of the program. Table 22 contains the results of that questionnaire. It should be noted that parents frequently supplied more than one response to a particular question.

Parents were asked "What has your daughter had to say about her experiences at METRO?" Slightly more than three-fourths of the parents indicated that their daughter "enjoyed herself, enjoyed classes, loved trips, enjoyed meeting and interacting with people, had fun." This response category was by far the most common. About twenty-nine percent of the parents indicated that their daughter "learned a lot, learned math, learned to negotiate, learned values." Two other responses were made by more than ten percent of the parents: "good program, great experiences, positive experience, happy about program, interesting" and "made friends."

However, not all responses were positive. Three of the thirty-eight completed questionnaires indicated that the "program was better last year." No information was provided to indicate in what ways the programs differed from 1987 to 1988.

Parents were also asked to respond "very outgoing," "somewhat outgoing," somewhat shy" or "very shy" to the same two questions asked of the advisors: 1) Before METRO, how outgoing was your daughter? and 2) How outgoing does your daughter appear to be now? Fifty-three percent of the parents reported a positive change in their daughter. This is roughly comparable to the results reported by the advisors (sixty-two percent).

In response to "What changes, if any, have you noticed in your daughter that are due to her involvement in METRO?" about thirty percent of the parents reported "more determined, sure of herself, knows herself better, more outgoing, gained in maturity." Almost one-fourth indicated that their daughter "speaks clearer, expresses herself better." Further, almost one-fourth reported some type of academic change, namely "teaching herself to type, practicing Spanish, math improved, reading improved, talking more about school."

The aspects of self-confidence mentioned above by thirty percent of the parents appeared again in response to the question "What qualities, if any, has METRO brought out in your daughter?" About twenty-one percent of the parents responded "more outgoing, speaks up more, more confidence in herself, willing to use her intelligence." An equal percent of the parents reported "more sociable, openness to talk, learned to be friends with people of all races." Although advisors had mentioned specific qualities for a fairly large percent of the girls (about thirty-three percent), only about twenty percent of the parents mentioned specific qualities: "sharing, thoughtfulness, nice person" and "more responsible with others, obedient."

All parents responding to the questionnaire indicated that they would like to see their daughter attend the program again and that they would recommend the program to other parents. Parents were generally quite pleased with the overall program. Seven of the thirty-eight responding parents would recommend METRO for "educational reasons, helps girls prepare academically and spiritually."

In summary, parents seem to view METRO as having positive effects on their daughters. Parents indicated that their daughters enjoyed the program, that they become more self-confident and self-assured. Parents, much more than advisors, commented on the academic aspects of the program. Perhaps seeing the assignment of homework on a regular basis made the academics more apparent. Parents may also have realized the academic improvements that were being made, even if advisors did not. Parents would certainly be in a much better position to notice attitudinal changes toward academics as they compared and contrasted attitudes toward academics at METRO with attitudes toward academics during the school year.

PARTICIPANTS' PERCEPTIONS OF METRO AND COMPARISONS OF CLASSES

Table 23 contains the responses of program participants, by grade level and group, to questions dealing with the overall effects of METRO. As with many of the other open-ended questionnaires, respondents often supplied more than one answer to a given question.

Comments about meeting and communicating with people were supplied most frequently in response to the question "Suppose someone asked you 'What's the best thing about METRO?' How would you answer them?" Field trips and art class were also common responses. It is encouraging that academic responses were given by a number of the girls.

About one-sixth responded "teaches you more in the classes, learn new things" and one-sixth responded with one of the academic classes (science, communication skills, or math).

Some interesting differences in the pattern of responses to this question should be noted. The B, or high, level at each grade responded with positive comments about the teachers and about advising. Furthermore, one-sixth of the eighth-graders responded "educational place, good program." No seventh-graders gave such a general academic response.

When asked to indicate the worse thing about METRO, slightly more than twenty percent of the girls responded "nothing, METRO's the best." Lunch and the fact that the building had no air-conditioner were mentioned frequently as problems. Of some concern is the fact that about eighteen percent of the girls made comments about the classes or the homework.

In response to "If someone were to ask you whether or not they should attend METRO, what would you tell them? Why?" almost all the girls responded positively. Only four of the sixty girls responded negatively. Girls indicated that METRO was fun and a new experience and that it was a place to meet new friends. Slightly more than forty-five percent of the girls indicated that someone would learn more or that the program would be helpful. Again, the fact that a large number of girls provided an academic response is encouraging, even though the academic response may have been only one of several responses that a girl gave to this question.

How did girls respond to "What influence do you think METRO has had in your life?" Twenty percent of the girls responded "learned to have faith in myself, learned what I really am" while twelve percent responded "great influence, glad to have had a chance to come." Six of the fifteen girls in 8B viewed the influence as "math class, helped in studies."

While seventh graders responded "learned things, made me learn, good learning experience," it was the eighth graders who responded "insight on school, influences courses to take, have an education/college." Perhaps this difference is to be expected. Seventh-graders frequently have little choice in their selection of courses while eighth-graders often begin making choices that lead to academic and/or honors tracks in high school.

When given an opportunity to make any other comments about METRO, slightly more than twenty percent of the eighth graders remarked "helps you get prepared for school, learned a lot." However, the most common responses by far were "great program, loved it, inspirational place" and "fun." About sixty-two percent of the girls would like to attend METRO again while twenty-five percent were unsure.

At the end of METRO, participants were also given an opportunity to make comments about the different classes. What differences appear in the comments? Table 24 reports the results of the class comparison questions, exhibiting the responses and corresponding frequency counts by grade level and by group within each grade level. A cursory look at the total frequency column reveals some interesting comparisons. First, for most questions, the majority of responses seem to lie within one or two main categories. Second, the frequency counts in the main categories are generally lowest for mathematics, with the exception of the first question asking about feelings toward the METRO math class. Third, there are frequently some differences in the response patterns of seventh and eighth graders. There are fewer differences between the response patterns of the two groups at each grade level.

Examining the table more closely, it is possible to be more specific about the differences in responses. In relation to mathematics, an overwhelmingly large proportion of the comments are positive. To the question "How do you feel about your math class?" fifty-five percent of the girls reported "liked, fun, loved, ok." At the seventh-grade level, the second most common response category referred to the teacher while at the eighth-grade level the second most common category referred to learning or understanding. Also, only eighth-graders responded that the class was exciting or interesting. While it is true that the different grade levels were taught by different teachers, perhaps the difference in responses is a reflection of greater maturity on the part of the eighth-grade girls and/or the fact that they were more into the algebra portion of Transition

Mathematics.

It should be noted that twenty-five percent of the girls made some type of negative comment, with twenty-one percent commenting "didn't like." This is a cause for concern and for further investigation.

In comparing METRO's math class to their regular school class, some differences between seventh and eighth-graders are again evident. Eighth-graders saw METRO as explaining, helping, or more interesting than school. Seventh graders made more negative comments about either METRO or school or made comments about the pacing and homework involved in the program. Comments about pacing and homework may be a reflection of the curriculum which stresses covering a lesson a day and which expects students to read on their own and work problems. Because at least half of the eighth-graders were at METRO for the second summer, perhaps pacing/homework were no longer an issue for them and they may have provided needed socialization influences for first-time eighth graders. From the current data, there is no way to determine whether there were differences in comments based on prior METRO experience because names were optional on this questionnaire.

Girls were asked "Has the METRO math class changed your attitude toward math? If so, how?" Forty-five percent of the girls responded positively to this question, reporting that they found they could learn or that math could be fun. These comments are important in light of research which indicates that self-confidence and general liking of mathematics are important for continued study of the subject.

There is cause for concern, though, that fifty percent of the comments either indicated no change in attitude or a change in attitude in a more negative direction. (Responses that indicated no change because math was already liked are not included in this discussion.) It is possible that these results are due to the math curriculum. Afterall, Transition Mathematics is probably quite different from the curriculum the girls experienced at school and involves an earlier introduction of higher-level concepts. It is also quite possible that many of these girls have very deeply ingrained negative perceptions towards mathematics that cannot be changed in a relatively short period. In fact, at the beginning of METRO about thirty percent of the girls considered math one of the program components they thought they would like the least.

Eighth-graders responded much more positively than seventh graders to the question "Has the METRO math class changed your attitude toward taking algebra? If so, how?" Again, this may be a reflection of the curriculum. The eighth-grade girls would have done more of the algebra portion of Transition Mathematics and possibly found that algebra was accessible. Also, algebra may be an option for students in the upcoming school year. Because of the portion of Transition Mathematics covered by the seventh graders, they had less exposure to algebra.

Relative to science, it is quite clear that the major difference between METRO and school relates to lab work and experiments. This is true for both grade levels. The second most common response at both grades indicates METRO's science class was fun or interesting. Once again, the academic comments came from the eighth graders. As with the math comparison, eighth-grade girls felt METRO helped them to learn or understand the content.

The purposes of the character development and communication skills classes would appear to be quite evident to program participants. The purpose of character development was to learn about religion, God, and how to feel about oneself and others. Responses in these categories overshadow responses in any other categories at both grade levels.

In communication skills class, the comments reflect the emphasis on public speaking, writing, and editing. In fact, roughly fifty percent of the comments related to public speaking alone.

For both fine arts and sports, the most common response to questions about the courses reflects their fun nature. But for sports, girls also saw one purpose as learning the correct rules for playing certain team sports. Although aspects of learning do appear for fine arts, these responses are extremely overshadowed by the category that describes fine arts as "fun, liked, loved."

As mentioned in the recruiting presentation section, participants were asked at the beginning of the program to indicate the program components they thought they might like the best and the ones they thought they might like the least. At the end of the program, these same questions were asked and girls were able to indicate the parts they actually liked the best and the parts they actually liked the least. Table 25 contains both the pre and post results of those questions. Recall that more than one response was permitted to each question.

The overall pattern of results seems to agree with the comparisons given by Goodlad [1984]. That is, the proportion of girls liking fine arts and sports (physical education) is much higher than the proportion liking the various academic areas, at both grade levels. It is interesting to note, however, that the proportion of seventh-graders liking sports declined over the course of the program. There appeared to be some discipline and personality problems between the girls and the seventh-grade sports teacher. These problems most likely account for the decline.

For the academic subjects (math, communication skills, and science), a major difference exists between seventh and eighth-grade responses. At the end of METRO, eighth graders were much more likely to report liking the academic subjects than to report disliking them. Further, the percentage who reported liking the academic subjects was higher at the end of the program than at the beginning. The percentage who reported disliking a subject either declined or remained constant.

However, for seventh-graders the results are not as positive. The percentage of girls who reported liking math and communication skills declined from the pre to the post assessment, with a corresponding increase in the percentage who reported disliking these areas. For science, the pre and post assessment results were roughly the same.

These results seem to corroborate the grade-level differences that appeared in the results reported in Table 24. In particular, the eighth graders seem to be more attuned to the academic features of the program. Perhaps they are more academically minded because of the added year of maturity. The better results at the eighth grade cannot be attributed to overly positive remarks at the program's end by repeat participants. Indeed, it is the new eighth graders who are responsible for the greater positive changes over the course of the program, as measured by increases in the number of girls who report liking a subject. The number of second summer participants who reported liking a subject generally held constant from the beginning to the end of the program.

Teacher differences are possibly responsible for some of the differences in mathematics at the two grade levels as seventh and eighth graders had different teachers. But both grades had the same communication skills teacher as well as the same science teacher. Hence, the increase in the percentage of "dislike" at the seventh-grade for communication skills is puzzling and difficult to explain.

The percentages of girls who reported liking the career speakers and individual counseling component increased over the course of the program for both grade levels. This is encouraging as these are both integral parts of the METRO program. Reservations that girls may have had at the beginning of the program about these two components seem to have been dispelled.

In summary, participants generally responded positively to the METRO program, considering the program to be fun and a good experience. Girls made a number of comments about the academic features of the program, especially commenting on learning, receiving help with studies, and gaining insight on school and courses of study.

In terms of class comparisons, eighth-grade girls viewed METRO's math class as providing more academic support than their regular school math class. In science, girls at both grade levels saw the hands-on involvement with experiments as a major difference between METRO and school. The communication skills class provided girls with some important public speaking skills that may be responsible for the positive changes in the "outgoing" personality factor reported by advisors and parents.

Of special note is the fact that the eighth-grade girls were more positive toward the academic classes than were the seventh graders. Further investigation would be helpful to assess why the academic differences seem to be so pronounced between the two grades. The difference in percentages of like/dislike for the academic classes at the two grade levels is particularly disturbing when one considers the seventh-grade decreases in the "like" percentages that occurred over the course of the program. Perhaps the decreases are due to the fact that the younger girls are just beginning to make that transition into adolescence. They may not have been prepared to spend as much time on academics as METRO required. The fact that eighth graders have only one year before entering high school may make them more aware of the academic conditions that must be satisfied if they expect to attend a good high school. Hence, this may have made them more receptive to the academic features of METRO.

ATTITUDES TOWARD MATHEMATICS AND ANTICIPATED MATHEMATICS COURSE SELECTION

One of the questions of interest is whether or not there are differences in attitudes toward mathematics based on race or ethnic group. Table 26 contains the responses to several mathematics attitude questions for Blacks and Hispanics attending the METRO program. The differences are reported by grade level as well as by racial/ethnic group. By looking at ethnic differences only within METRO, one can assume that at least some background characteristics are roughly similar for both groups, such as motivation and overall achievement levels. For each question, students responded with one of three choices: agree, disagree, or no opinion. Table 26 contains only the results for agree or disagree and only for students present for both the pre and post assessments.

The percentages must certainly be interpreted with care because the number of girls in each group is small. However, some trends do appear. First, in the pre-program survey, the percentage of Blacks who agreed with the statement "Mathematics is an interesting subject" is higher than the corresponding percentage of Hispanics, at both grade levels. For the statement "I like mathematics," the percentage of Blacks at the eighth-grade level who agreed with the statement is again higher than the corresponding percentage of Hispanics. For seventh-graders, equal percentages of the two groups agreed with the statement. Of interest, though, is the fact that for both racial/ethnic groups, more seventh graders agreed with these two statements than did eighth graders. While caution is needed in interpretation, this trend is in agreement with research reported earlier that indicates more negative attitudes as one progresses through the grades.

The statements "I enjoy working word problems" and "Mathematics is confusing to me" are indicative of confidence toward mathematics. At both grade levels, the results suggest that Hispanics are less confident in their mathematical ability than are Blacks. For some Hispanic girls, there may be a language factor involved in solving word problems that influences the enjoyment factor. In some of the families of Hispanic girls attending METRO, parents speak very little English. Because many of these girls also attend predominantly Hispanic schools and often speak Spanish with friends and classmates, there may be some deficiencies in English that make solving word problems more difficult.

The last two questions measure the perceived practical utility of mathematics. Large proportions of both Blacks and Hispanics at both grade levels disagreed with the statements as given, which may indicate that they perceive some societal usefulness for mathematics. The results may simply reflect a recognition that arithmetic is everywhere. Or, perhaps the girls have heard messages in the popular press about the need for mathematics or have heard messages at their schools indicating the number of careers that require mathematical training. Whatever the reason, the fact that the girls responded as they did is important because research indicates that perceived usefulness affects continued mathematical study.

To determine the changes in mathematics attitudes over the course of the summer program, one must consider the post-program results. Some interesting features emerge upon further inspection of the results in Table 26. Fewer seventh-grade Blacks found math interesting or reported liking math at the end of the program than at the beginning. For seventh-grade Hispanics, the percent who reported math as interesting increased but the percent who reported liking math decreased. The decrease for Hispanics can be attributed to an increase in the number of girls answering "no opinion."

For eighth-graders of both racial/ethnic groups, there was an increase in the pre to post percentage of girls who agreed with the statements "Mathematics is an interesting subject" and "I like mathematics." The increase for the first of these two statements is particularly striking and may be due to the curriculum used for the math class. Transition Mathematics applies mathematics to a variety of situations and contains a wealth of fascinating information not typically found in a mathematics book.

If the curriculum is responsible for the increase in agreement with the first two statements at the eighth grade, then it is natural to wonder why there were decreases at the seventh grade. The portion of Transition Mathematics covered by the eighth graders contains much more algebra and, hence, topics studied are likely to contrast sharply with topics studied in school. However, the portion of Transition Mathematics covered by the seventh graders contains topics much more likely to have been studied in school, even though Transition Mathematics may present the topics quite differently. Also, the two grade levels had different teachers and this may help explain the differences in results.

Seventh-grade Hispanic girls were less likely to enjoy working word problems at the end of METRO than at the beginning. This was also true to some extent for eighth-grade Hispanic girls. Not much change was reflected for Blacks at either level, although there were slight decreases in the percentages who agreed with the statement. Again, these results are likely due to the fact that Transition

Mathematics places a heavy emphasis on reading and working word problems, many of which are non-traditional. The emphasis on language may create more difficulties for Hispanics than for Blacks. Although all girls speak English, Spanish is the language spoken at home for a number of the girls. In fact, many of the girls at METRO use Spanish when speaking with friends.

Fewer girls of both ethnic groups agreed with the statement "Mathematics is confusing to me" at the end of METRO than at the beginning. This represents a positive change from the pre to the post assessment. Again, these results may be due to the mathematics curriculum or they may be a reflection of the personal attention and help available at METRO.

To some extent, the responses to "I enjoy working word problems" and "Mathematics is confusing to me" agree with each other, especially if the responses are a reflection of the math curriculum used at METRO. Transition Mathematics is designed to help girls learn on their own, accounting for the lower agreement with "math is confusing." But the heavy emphasis on reading and applications may account for the lower enjoyment of working word problems. Interviews with some of these girls might have provided some insight into what aspects of the mathematics class or the curriculum accounted for the change in responses.

At the end of their METRO experience, both racial/ethnic groups at both grade levels showed an increase in the number of girls disagreeing with the statement "There is nothing creative about mathematics; it is just memorizing formulas and things." This change is not surprising in light of the use of Transition Mathematics which contains problems with many different wordings and which deemphasizes memorizing techniques for solving particular types of problems.

How did the girls at the comparison schools respond to these attitude questions? Table 27 contains the spring/fall differences in responses at the five comparison schools for sixth to seventh graders; Table 28 contains the same results for seventh to eighth graders. Some girls failed to respond to one or more of the questions, so the number of respondents varies from question to question. But, a girl must have answered a particular question on both the spring and fall assessments in order for her responses to be included in these results.

The percents reported in both tables must be interpreted with care because of the fairly small number of respondents at each of the five schools. Nevertheless, some interesting differences appear. For the sixth to seventh grade results, responses at the two Hispanic schools, schools B and D, are quite different. A much smaller proportion of students at the private school (school B) agreed with the statements "Mathematics is an interesting subject" and "I like mathematics." In addition, a much larger proportion of the girls at school B agreed with the statement "Mathematics is confusing to me." It must be remembered that only the top two levels completed the questionnaires at school D. Because these girls are better students overall, it is likely that they would respond more positively to mathematics. It is not clear, however, that this situation is sufficient to explain the huge differences in percentages between these two schools.

At the same grade level, comparisons of responses at the two predominantly Black schools, schools C and E, are hampered by the very small sample size at school E. In this case, it is the private school (school C) that generally had the more positive results. In fact, a fairly large percent of the girls at school C liked mathematics and found it interesting. However, the percent who enjoyed working word problems was fairly low.

There are some interesting differences between the spring and fall responses for the sixth to seventh graders. At both schools C and D there was a decrease from the spring to the fall in the percentage of students who liked mathematics or who found it interesting; in fact, the decreases at school C were rather drastic. Perhaps the lower percentages in the fall are a reflection of the enormous amount of review that is typical in mathematics courses at the beginning of the school year [Flanders, 1987]. Such review may make the subject less interesting. However, the review probably also accounts for the fact that math is perceived as less confusing in the fall than in the spring.

For the seventh to eighth grade results in Table 28, the same general trends occur. That is, results at the private Hispanic school (school B) were generally more negative than those at the public Hispanic school (school D). Likewise, results at the private Black school (school C) were generally more positive than those at the public Black school (school E), although responses to "I enjoy working word problems" were more positive at school E.

Spring to fall changes in the percent agreement with "Mathematics is an interesting subject" and "I like mathematics" are somewhat mixed, with some schools reflecting an increase and others reflecting a decrease. The decrease in the percentage of girls who agreed with "Mathematics is confusing to me" is again apparent at this grade level. As before, the amount of review typically found at the beginning of the year can perhaps explain the decrease in agreement with this statement as well as the mixed results on the other two.

Although all schools do not respond alike, this perhaps provides some indication that by aggregating responses from the schools, the comparison sample is representative of the population from which METRO draws participants. Some students attend poor schools, some attend schools with strong academic reputations, some attend schools where math is exciting and interesting, and others attend schools where math is highly disliked. All are exposed to the same METRO program.

Table 29 reports both the METRO seventh grade and comparison sixth to seventh grade responses for the mathematics attitude questions; Table 30 reports the same results for METRO eighth graders and comparison seventh to eighth graders. Comparison girls are aggregated by racial/ethnic group. Essentially, this means that results from schools B and D are combined and results from schools C and E are combined, with results from school A incorporated into the appropriate group.

The results reported in Table 29 make interpretation of the METRO results somewhat difficult. Spring/fall percentages for comparison girls and pre/post percentages for METRO participants generally increase or decrease together, with three exceptions in the results for Hispanics. First, the percentage who agreed with the statement "Mathematics is an interesting subject" increased for METRO participants from the beginning to the end of the program but remained unchanged for the comparison girls from the spring to the fall. Second, the percentage of comparison girls who agreed with "I enjoy working word problems" increased from the spring to the fall while it decreased for METRO participants. Reasons for the possible decrease at METRO have already been noted. It is not clear why there should be an increase for comparison girls. The third exception is to the statement "Other than going to the store, I really don't use math very much outside of class." The percentage of girls who responded positively to this statement, by disagreeing with it, increased from spring to fall for the comparison girls while it decreased from the pre to the post assessment for METRO participants. This is surprising in light of METRO's use of Transition Mathematics which applies mathematics to a variety of situations. It is unclear why the percentage for comparison girls should have increased; perhaps something about the curriculum at the beginning of the school year led to this result.

The general pattern suggested above means that for METRO seventh graders it is difficult to conclude that changes in attitudes toward mathematics are due to the program, except possibly for Hispanics on the three statements indicated above. The changes may be due to the program but they may simply be due to influences related to the shift toward adolescence being experienced by these girls. More likely, there is some interaction of program influence and outside influences.

The differences in attitudes for METRO eighth graders and comparison seventh to eighth graders, reported in Table 30, do not follow the same trend as for the younger girls. That is, there are some clear differences between the responses for the comparison girls and the METRO participants for both racial/ethnic groups. Hence, it is reasonable to conclude that changes for METRO participants are likely due to the program. In particular, for METRO participants attitudes toward mathematics at the end of the program were generally more positive than at the beginning of the program. For comparison students, attitudes toward mathematics in the fall were either more negative than in the spring or had not changed.

There are two exceptions to this overall pattern. Fewer girls reported agreement with "Mathematics is confusing to me" in the fall or at the end of the METRO program. Explanations for these results have already been discussed; the typical pattern of review in the fall explains the results for comparison girls while the nature of _Transition Mathematics_ explains the results for METRO participants. The second exception to the overall pattern occurs in response to the statement "I enjoy working word problems." The percent of comparison girls who agreed with this statement remained constant from spring to fall while it decreased for METRO participants. The decrease at METRO can be attributed to an increase in the number of girls responding "no opinion" rather than to an increase in the number of girls disagreeing with the statement.

In addition to the attitude questions, information was collected on anticipated mathematics course selection. In particular, the evaluation sought to determine whether there are differences in anticipated course selection based on race or ethnic group and whether METRO could effect changes in course plans. All of these results need to be interpreted with care because it is not clear that respondents understood the nature of various courses or their prerequisites.

Table 31 reports the pre/post differences in anticipated mathematics course selection for METRO participants, by racial/ethnic group and by grade level. There are several interesting trends in the pre-program data reported in Table 31, despite the relatively small sample. First, there was a general decrease in the percentage of girls expecting to take a course as the courses progressed in level of difficulty. The major exceptions to this trend were the high percentages of seventh-grade girls who anticipated taking geometry and the percentages of seventh-grade Hispanics and eighth-grade Blacks who anticipated taking calculus. Second, the percentages for precalculus are relatively low when compared to the percentages for calculus. Girls may not realize that precalculus is a relatively demanding course generally taken as preparation for calculus. The prefix "pre" may have some negative connotations, especially if this course is viewed as having a function similar to that of prealgebra. Third, an extremely high percentage of girls at the seventh grade anticipated taking a computer programming course. The eighth grade percentages were only high after the METRO program. The figures for computer programming are certainly much higher than research figures reported ten years ago (13.3%), perhaps indicating the greater prevalence and perceived need for computer expertise at the present time. It is also highly possible that girls perceive this course more along the lines of computer literacy and playfulness with computers.

The pre-post program results are generally quite positive. That is, the proportion of girls expecting to take a given math course is generally higher after the METRO program, for both grades and both racial/ethnic groups. The increase in the number of Hispanic seventh-graders who plan to take precalculus is striking.

Table 32 contains the spring/fall differences in anticipated math course selection for girls at the five comparison schools. For sixth to seventh graders the results are somewhat difficult to interpret. The overall decrease in the percentage who anticipated taking a course as the courses became more difficult is apparent here as well. However, the differences in the percentages from the spring to the fall are mixed, with decreases occurring at schools B and E and increases occurring at schools C and D.

For the seventh to eighth-grade results, there was generally an increase from the spring to the fall in the percentage of girls expecting to take a particular mathematics course.

Table 33 contrasts anticipated course selection for METRO participants and comparison girls, with responses aggregated by racial/ethnic group at each grade level. In general, more METRO seventh graders expected to take each course than did the comparison sixth to seventh graders. The exception to this general pattern occurred for first-year algebra, where the percentage for Black comparison girls was higher than the corresponding percentage for Black METRO participants and where the percentages for Hispanics were roughly equivalent.

For girls at this grade level, both the spring to fall and pre to post percentages of girls expecting to take a given course generally increased. The only noticeable difference seems to be in the precalculus results for Hispanics. While the number of comparison girls expecting to take this course decreased, the number of METRO participants increased considerably.

For METRO eighth graders and comparison seventh to eighth graders, the pre METRO percentages are generally higher than the spring percentages with three exceptions. First, for geometry the results for the comparison girls and for the METRO participants are roughly comparable for both racial/ethnic groups. Second, for second year algebra the Black comparison results are more positive than the corresponding METRO results. Third, more comparison girls anticipated taking computer programming.

Again, the percentages for both the comparison and the METRO girls generally increased from the spring to fall and pre to post assessments, respectively. It is interesting to note that the percentage of METRO participants responding positively to computer programming increased over the course of the program. This is somewhat surprising as no work with computers is done at METRO.

The fact that there is an upward trend toward anticipated mathematics course selection on the part of comparison girls makes the interpretation of the METRO results more difficult. Is the upward trend for METRO participants due to the program or to some other set of influences? More probing is needed to determine just what these results mean.

Another way to look at the results of anticipated course selection is to simply look at the number of courses that girls anticipate taking before leaving high school rather than looking at actual course names. Table 34 reports the number of anticipated courses by racial/ethnic group within METRO. Table 35 presents the same results for comparison girls and Table 36 contrasts the comparison and METRO results, with data aggregated by racial/ethnic group at each grade.

Two features of Table 34 are worthy of mention. At the beginning of the METRO program, the most frequent number of anticipated courses for Blacks at both grade levels was roughly three. For Hispanics, the number of anticipated math courses was two or three at the eighth-grade level and two, three, or four at the seventh-grade level. The other feature of note in Table 34 is the jump in the number of girls planning to take five math courses after completing the METRO program. Although results must be interpreted with caution because of the relatively small numbers, this is an interesting finding. METRO does counsel the girls and gives them useful information related to college requirements and requirements for entry to various professions. It is possible that the jump in the number of girls who anticipate taking five math courses is due to the added information which they now have or the results may be due to girls responding in a manner designed to please the evaluator.

For comparison girls, the spring results for the number of anticipated courses, reported in Table 35, generally indicate two or three courses as the number that most girls expect to take. The fall results were generally more positive than the corresponding spring results. That is, girls generally expected to take more mathematics courses in the fall than in the spring. Perhaps at the beginning of a school year girls are generally more positive in their responses as the courses may not seem overly difficult. As the year progresses and difficulties with material occur, girls may be less likely to want to continue the study of that subject.

A look at the results for both comparison girls and METRO participants, reported in Table 36, reveals some interesting differences. For the sixth to seventh grade level, the spring to fall shift in the results for the comparison girls is reflected in more girls expecting to take three mathematics courses. For the METRO seventh graders, the shift from pre to post is a shift toward taking five courses.

For the upper grade level, more comparison girls expected to take four or five courses in the fall than in the spring. Similarly, METRO participants expected to take more math courses at the end of the program than at the beginning. Because both groups experienced a shift toward taking more courses, it is not possible to conclude that the METRO results are due to the program. There is likely some interaction of program and outside influences.

In summary, the results on mathematics attitudes and mathematics course selection were somewhat mixed. For seventh-grade participants, attitudes toward mathematics were somewhat more negative at the end of the program than at the beginning. However, the same trend occurred for the comparison girls from the spring to the fall questionnaires. Hence, it is not clear that the negative responses are a reflection of problems with the program. They may simply be a reflection of attitudinal changes occurring in girls at this stage of development.

Despite the negative attitude results, seventh graders expected to take more mathematics courses at the end of the program than at the beginning. These results are in some conflict with the attitude responses and are likely related to misunderstandings on the part of the girls about the nature of the different mathematics courses.

The results for the eighth graders do reflect changes that are likely program influences. Attitudes toward mathematics were generally more positive at the end of the program and more positive results were not obtained from the comparison girls in the fall. As mentioned earlier, the fact that the two grade levels had different teachers compounds interpretation of the results. There may have been a program by teacher interaction that could help explain why there were attitudinal improvements at the eighth-grade level but not at the seventh-grade level.

INTERVIEWS WITH METRO GRADUATES

Seven former graduates of METRO, now in high school, had been hired to serve as counselors during the 1988 summer program. In early June, before the program began, these girls were interviewed to determine their perceptions of METRO's effects. Clearly, these girls constitute a very select sample, as they are former participants who are now working for the program. Furthermore, in addition to attending the summer program, all had been involved in the high school and leadership aspects of METRO conducted during the school year. Although their perceptions of the summer program have undoubtedly been affected by participation in these other aspects of METRO, these girls can shed some light on the possible long-term influences of the program.

The results of the interview are reported in Table 37. As with other questionnaires, girls often provided more than one response to a particular question.

Girls were asked "What made you want to attend METRO in the first place?" The top response "meet new people, help me be more friendly, made me feel at home" is similar to that expressed by current participants. METRO's appeal as a place to meet people and make friends seems to be heard by all interested participants.

Girls responded with academically oriented answers to the question "What parts of METRO did you like the best?

Why?" Both communication skills class and math class were mentioned by all the girls. These responses provide an interesting contrast to the responses of summer 1988 participants found in Table 23. It is difficult to know whether the academic aspects mentioned by these girls would have been supplied as answers to this question at the end of their summer experience. Perhaps upon reflection of the academic aspects that were the most beneficial in school, these two classes clearly stand out. These results suggest the need to resurvey some of the 1988 participants after one or two intervening school years to determine whether perceptions about the best parts of METRO change after returning to the school environment.

The question "What influence do you think METRO has had in your life?" generated a response similar to that provided by current participants. Six of the seven girls responded "teaches you to be what you want to be, you can achieve, you can go beyond what you thought." This response is an important confirmation of the summer 1988 results because it indicates that the gains in self-confidence achieved during the summer program may be long-lasting.

Of interest is the fact that METRO had some impact on the school course choices of these girls. Four of them reported that because of METRO they took more math and science than they had originally planned. METRO was credited with pushing them to achieve.

In summary, although the sample of girls discussed here was very select and undoubtedly pro-METRO, their answers do provide insight on the possible long-term benefits of the program. These girls saw METRO as responsible for building their self-confidence and helping them learn to be whatever they desired. The push to achieve led, in practice, to an increase in the amount of math and science taken by these girls. This is an important influence considering the role these two areas have in keeping career options open. METRO should consider obtaining data from other graduates of the program to determine if the influences reported by these seven girls are wide-spread. If so, they provide a measure of the real impact of the program.

CONCLUSIONS AND RECOMMENDATIONS

The results reported in the last section appear to indicate some positive influences of the METRO program. Each subsection contained a brief summary of its results as well as comments suggesting possible reasons for the observed patterns. This section will attempt to resummarize those results and provide some recommendations on issues that should be considered by program personnel.

The recruiting presentation in the schools is effective in presenting the program as fun, interesting, and as a place to make new friends. The opportunities for field trips, team sports, and fine arts are quite appealing. However, a major part of the METRO day is spent in academic classes, namely mathematics, science, and communication skills. Character development is also taught very much as a class, that is, with quizzes and homework. The recruiting presentation, however, does not seem to emphasize the academic aspects of the program to the extent that perhaps it should. Girls need to be aware that they are signing up for a program that expects them to complete homework on a regular basis. This is critical because the academic parts of the program were not the parts that girls anticipated liking the best, yet these are the parts that receive the most emphasis at METRO. For many girls, particularly those entering seventh grade in the fall, the somewhat negative attitudes reported in previous sections of this report may be due to the fact that they were not adequately prepared to spend five weeks doing the type of academic work frequently done in a "summer school" program. Hence, program personnel should take a critical look at the school recruitment presentation to make sure that it is truly reflective of all aspects of the program.

The mean differences in the self-esteem measures over the course of the program, as measured by the Coopersmith Self-Esteem Inventory, were generally positive, although most of the increases were not statistically significant. Statistically significant increases in self-esteem measures were obtained only for seventh-grade Blacks and eighth-grade Hispanics. The results suggest a grade level by racial/ethnic group interaction that is difficult to explain.

The changes in the self-esteem measures for seventh-grade Hispanics are somewhat disturbing because the overall pattern suggests less self-esteem at the end of the program than at the beginning. For no other group of participants were there any decreases in the mean measures over the course of the program, for either the total self-esteem measure or any of the subscale measures. The mean decrease in the total self-esteem measure for the seventh-grade Hispanic girls can be attributed to some degree to extremely large decreases in the total self-esteem measure for two of the thirteen Hispanic girls at this grade level. For six of these thirteen girls, the total self-esteem measure either showed no change or showed an increase. It is not clear why two of the girls in this group should have experienced such drastic changes in a negative direction.

The changes in self-esteem over the course of the METRO program are hard to interpret when contrasted with similar measures for girls at the five comparison schools. The results for seventh grade Hispanics at METRO are similar to those for sixth to seventh graders at the two predominantly Hispanic comparison schools. So the fact that there was a decrease in the self-esteem measures for METRO participants cannot necessarily be attributed to the program. The observed pattern of responses suggests, however, a need for further investigation to determine whether the results are due to the program, to maturational effects, to cultural influences, to some other influence, or to some interaction of these.

For Black seventh-grade METRO participants, the increases reported at METRO are similar to those reported at the private Catholic school with a predominantly Black population and much better than those at the corresponding public school. So METRO's impact on self-esteem may simply be due to the kind of personal attention that is often a hallmark of private schools.

For eighth-grade METRO participants, the results again suggest a grade level by racial/ethnic group interaction. The results for the METRO Black participants at this grade level are similar to those at the corresponding comparison schools. For the Hispanic girls at this grade level, results for METRO participants are much better than those for girls at the corresponding comparison schools. Again, the observed grade level/ethnic group patterns suggest the need to find other means to probe for self-esteem to determine what influences might account for the changes or lack of changes in these measures for the different groups.

Perhaps it was unrealistic to expect major changes in self-esteem during a five-week program, despite the personal attention and support that girls receive at METRO. It is more likely that if self-esteem has been positively affected, as results suggest is true for many girls, it is by beginning a process of slow steady improvement in girls' outlooks on their own abilities and their own worth. Follow-up measures of METRO participants and girls from comparison schools after a year or two might shed some light on whether METRO participants have self-esteem measures that are significantly different from those of other girls from the same ethnic group and from a similar background. Such follow-up measures would provide clues about any long-lasting impact of METRO on self-esteem.

Even though the results from the Coopersmith Self-Esteem Inventory were not as positive as might have been desired and were difficult to interpret because of similar results at the comparison schools, advisors and parents both reported changes in the girls that would suggest positive changes in self-esteem. Advisors viewed METRO as helping girls to open-up, helping them to make friends and learn the value of friendship, and helping them learn to be more self-confident.

Parents also viewed METRO as helping their daughters become more self-confident and self-assured. Because one's self-confidence affects one's self-esteem, these comments suggest that METRO does positively influence self-esteem. The items on the commercial self-esteem inventory may simply not be sensitive enough to record the changes in the girls, especially over such a short period of time.

Further, for sixty-two percent of the girls, advisors reported positive changes in terms of girls becoming less shy and more outgoing; fifty-three percent of the parents also reported positive changes in this personality factor.

Parents were generally quite pleased with the program and with the experiences it afforded their daughters. In addition, parents were much more likely to comment on the academic parts of the program than were advisors. Parents appeared to be aware of the educational benefits that METRO provides.

This difference in who makes academic comments about the girls and the program is an important difference and indicates an area for critical review by program personnel. The lack of academic comments by advisors may mean that they are not as sensitive as they should be to the academics that METRO provides. Hence, in the individual counseling sessions, they may not discuss academics. Such discussion could sensitize the girls to the academic benefits being offered by the program and possibly result in a decrease in the "dislike" percentage for the academic classes. Academic counseling may be especially important for the seventh-grade participants as girls at this level were less positive toward the academic components than were those at the eighth-grade.

When asked to make global comments about METRO, girls generally responded positively. Girls liked meeting new people, going on field trips, and attending art class. Further, one-sixth of the girls commented that METRO taught them new things.

Almost all girls would recommend METRO to someone else. In addition to the fact that METRO was fun and a place to meet new friends, about forty-five percent of the girls indicated that someone would learn more or that the program was helpful. Eighth graders, in particular, indicated that METRO helped them gain insights into school and courses of study necessary for a good education and for college.

It has already been noted that both advisors and parents viewed METRO as helping girls gain self-confidence. Twenty percent of the girls also perceived METRO as helping them to have faith in themselves and to learn who they really are. Again, these comments reflect aspects of self-confidence that undoubtedly have a large influence on measures of self-esteem.

When girls had the opportunity to make comparisons among the classes, some interesting differences emerged. Eighth-graders perceived METRO's math class as more academically helpful than their regular school math class. For all girls, the hands-on experimental approach to science at METRO was quite different from the science approach at school. Further, the public-speaking skills emphasized during communication skills class likely influenced the changes toward being less shy that were reported for most of the girls by parents and advisors.

Overall, eighth-grade participants were much more positive towards the academic classes than were seventh-grade participants. The increase in the "dislike" percentage for math and communication skills at the seventh grade level is cause for concern. As mentioned before, the younger participants may not have been prepared for the amount of academic work required of program participants. The older participants, however, are only one year from high school and may be thinking about the school they would like to attend and the requirements which must be met for acceptance to that school.

Mixed results were also obtained on the mathematics attitude items. Overall, seventh graders tended to have somewhat more negative attitudes toward mathematics at the end of the program. But, the same trend was observed in the comparison girls so it is not reasonable to conclude that the results are necessarily due to the program at METRO. Despite the negative attitudes, seventh grade girls expected to take more mathematics courses at the end of the program than at the beginning. More probing is needed to resolve this discrepancy. Do the girls see the need for more math even if their attitude is somewhat negative or do the girls just not understand the nature of the math courses they thought they would take?

Eighth-graders were generally more positive toward mathematics at the end of METRO than at the beginning. The same trend was not observed for the comparison girls so it is likely that the observed pattern can be attributed to the METRO program. The fact that the two grade levels had different teachers may account for some of the differences in attitudes toward mathematics. However, seventh graders were also more negative toward communication skills at the end of METRO while eighth graders were more positive, and both groups had the same communication skills teacher. Hence, the differences in attitudes toward mathematics may be due more to grade level differences in the girls than to teacher differences.

The differences in mathematics attitude results for the two grade levels suggests the need for a careful look at the use of Transition Mathematics as the curriculum. Despite the many advantages to be offered by this text, it may be that five weeks of working with the curriculum is not enough for students to derive sufficient benefit, particularly at the seventh-grade level. Evidence does exist that teachers using Transition Mathematics as their regular school curriculum need a certain amount of time to acclimate students to the pace, the reading, and the work with applications. Such time does not exist for the METRO program. Perhaps the positive features of Transition Mathematics should be incorporated into the program without actually using the text. That is, the same basic curriculum could be taught but in a different format.

The marked differences in results at the two grade levels suggest the need for a careful analysis of METRO's goals and strategies for achieving those goals. Perhaps the inclusion of participants preparing to enter the seventh grade in the fall is a mistake. By including seventh graders, the number of eighth-grade participants is restricted. METRO might be more effective overall by only working with eighth graders for whom results are positive. Eliminating seventh graders from participation would allow METRO to use its limited funds to help a greater number of eighth graders.

If METRO chooses, however, to continue serving both grades, then perhaps acceptance criteria needs to be higher for seventh-grade participants. Many girls at that level may not be mentally or emotionally ready to spend a major part of their summer doing "school work." By being more selective, METRO might obtain positive changes at the seventh grade as well as at the eighth grade.

It may also be that METRO needs to rethink the program for the seventh graders. Maybe the curriculum should be revamped so that learning can be emphasized but in a manner clearly different from school.

It is entirely possible that the negative results at the seventh grade are unusual and are a function of the particular sample of seventh-grade girls rather than being a function of the program. Hence, METRO needs to consider collecting data for another summer program. If the same grade level differences appear, then the above suggestions need to be strongly considered.

A continuing process of evaluation is essential in helping program personnel focus on the activities that are most beneficial to the groups served by the program. Perhaps METRO and Midtown, the comparable program for boys, should embark on a joint evaluation program. Having data for boys would strengthen interpretations of attitude comparisons and self-esteem measures between blacks and Hispanics and would provide more indications of differences due simply to grade levels or to racial/ethnic backgrounds.

In testing math attitudes, METRO might consider administering a commercially available test or one involved in other research studies, perhaps the Fennema-Sherman Attitude Scales. The Fennema-Sherman scales deal not only with confidence in one's ability and perceived usefulness but they also deal with the influence of parents on math attitudes and with the gender stereotyping of the subject. The Black and Hispanic cultures are different and it would be interesting to know whether differences in parental style and expectations influence differences in math attitudes, especially as attitudes play an important role in future course selection.

The need for a Comparison group is essential and METRO should attempt to administer questionnaires at a larger proportion of the schools from which it draws students. While it would still be useful to have some schools that are overwhelmingly Black or Hispanic, it would help to have some schools with a more mixed population. Also, random selection of the schools might result in a better representation than obtained here. Although the Comparison sample in this study is probably representative, there may be some aspects of bias that random selection would eliminate.

One final methodological issue is the issue of longitudinal follow-up. The real measure of METRO's success will not be known until the cohort of participants completes high school and makes college/career decisions. Because the summer sample only involves between fifty and sixty girls, it is unlikely that a relatively large proportion from any one summer can be located five to seven years later. If there is a way to keep in touch with these girls, then at some point in the future some longitudinal information may be useful in analyzing METRO's impact. Although the first METRO cohort will not graduate from high school until 1990, information related to course selections could be obtained at the present time.

The interview results from the seven former METRO participants now in high school suggest some important long-term influences of the program. Generally, the girls credited METRO with influencing them to excel and to take more math and science. These girls were working for the program as high school staff members, and thus, constitute a very select, pro-METRO sample. However, if their comments are substantiated by a broader sample, then the long-term effects of METRO will be better known. Now is the time to start thinking about investigating the long-term benefits of the program and exploring how to modify the program to make sure that METRO's broad goals are reached for all ethnic groups.

APPENDIX A

Tables

TABLE 1 TOTAL NUMBER OF GIRLS TESTED AT COMPARISON SCHOOLS BY GRADE AND RACIAL/ETHNIC GROUP

		SPRING							FALL						
		Grade 6			Grade 7				Grade 7			Grade 8			
School	Type	Black	Hispanic	Other*	Black	Hispanic	Other	TOTAL	Black	Hispanic	Other	Black	Hispanic	Other	TOTAL
A	Private Catholic	3	-	-	3	-	1	7	3	-	-	3	1	1	8
B	Private Catholic	2	14	1	-	11	-	28	1	20	-	-	10	-	31
C	Private Catholic	23	-	2	20	-	-	45	21	1	-	19	-	1	42
D	Public	-	32	2	-	29	2	65	-	32	1	-	35	-	68
E	Public	8	-	-	11	-	1	20	29	1	2	14	-	-	46
TOTAL		36	46	5	34	40	4	165	54	54	3	36	46	2	195

*Other includes girls who are neither Black nor Hispanic, girls who did not report their racial/ethnic group, and girls who reported belonging to more than one racial/ethnic group.

TABLE 2 TOTAL NUMBER OF METRO PARTICIPANTS TESTED BY GRADE AND RACIAL/ETHNIC GROUP

		BEGINNING OF PROGRAM				END OF PROGRAM				PRIOR METRO EXPERIENCE			
Grade	Level	Black	Hispanic	Other*	TOTAL	Black	Hispanic	Other	TOTAL	Black	Hispanic	Other	TOTAL
7A	low	9	7	-	16	8	6	1	15	not applicable			
7B	high	4	9	2	15	3	8	-	11	not applicable			
8A	low	4	6	2	12	4	6	6	16	3	3	1	7
8B	high	5	8	1	14	5	7	1	13	3	3	1	7
TOTAL		22	30	5	57	20	27	8	55	6	6	2	14

*Other includes girls who are neither Black nor Hispanic and girls who did not report their racial/ethnic group.

TABLE 3 NUMBER OF GIRLS AT COMPARISON SCHOOLS PRESENT FOR BOTH THE SPRING AND FALL TESTING

	GRADE 6/GRADE 7				GRADE 7/GRADE 8				GRAND TOTAL
School	Black	Hispanic	Other*	TOTAL	Black	Hispanic	Other	TOTAL	
A	3	-	-	3	3	-	1	4	7
B	1	12	-	13	-	10	-	10	23
C	14	-	1	15	16	-	-	16	31
D	-	21	-	21	-	22	-	22	43
E	6	-	-	6	10	-	-	10	16
TOTAL	24	33	1	58	29	32	1	62	120

*Other includes girls who are neither Black nor Hispanic and girls who did not report their racial/ethnic group, and girls who reported belonging to more than one racial/ethnic group.

TABLE 4 NUMBER OF METRO PARTICIPANTS PRESENT FOR BOTH PRE AND POST TESTING

Grade	Level	Black	Hispanic	Other*	TOTAL
7A	low	8	6	-	14
7B	high	3	8	-	11
8A	low	4	6	1	11
8B	high	5	7	-	12
TOTAL		20	27	1	48

*Other includes girls who are neither Black nor Hispanic and girls who did not report their racial/ethnic group.

TABLE 5 COMPARISON STUDENTS' REASONS FOR RESPONSE TO "WOULD YOU LIKE TO ATTEND METRO IN THE SUMMER?"*

COUNTS

		GRADE 6						GRADE 7					
Response to Question	Reason Supplied	School					TOTAL	School					TOTAL
		A (n=3)	B (n=17)	C (n=25)	D (n=34)	E (n=8)	(n=87)	A (n=4)	B (n=11)	C (n=20)	D (n=31)	E (n=12)	(n=78)
YES	like to attend, interests me, good program	1	5	3	3	3	15	-	2	6	2	2	12
	will be fun, exciting	1	4	5	-	-	10	-	3	6	3	2	14
	will help me in future and in school	3	1	-	1	-	5	-	1	5	1	-	7
	improve skills, improve grades, help with studies	-	-	-	-	-	0	-	-	3	6	1	10
	learn things, challenging	1	-	1	1	-	3	-	2	-	4	1	7
	meet new people, friends or relatives go there	1	-	-	-	-	1	-	4	1	3	1	9
	feel special, will be good for me, become someone	-	-	3	-	3	6	-	-	-	1	-	1
	have nothing to do, this is something to do, nice change, get away from home	-	-	4	-	-	4	-	-	-	-	-	0

TABLE 5 (cont.)

	can accomplish something	-	-	2	1	-	3	-	-	1	-	-	1
	went last summer	-	-	-	-	-	0	-	1	2	-	-	3
	like to do things, go places, be with people	-	-	-	-	-	0	-	-	3	-	-	3
	see how it is, become part of METRO	-	1	1	-	-	2	-	1	-	-	-	1
	do something good during summer, instead of getting into trouble or wasting summer	-	-	-	-	-	0	-	-	-	2	-	2
	fit for program, good way to describe my life	-	-	-	1	1	2	-	-	-	-	-	0
	like or take classes	-	1	-	-	-	1	-	-	-	-	-	0
	parents want me to attend	-	-	-	1	-	1	-	-	-	-	-	0
NO	will be out of town	-	2	-	4	-	6	-	-	-	2	1	3
	don't like summer programs, don't like METRO	-	-	-	1	-	1	-	1	-	1	-	2
	going to another program	-	-	-	1	-	1	-	-	-	1	-	1
	other plans	-	-	-	-	-	0	-	-	-	2	-	2
	not interested, no comment	-	-	-	-	-	0	-	-	-	2	-	2
	don't know	-	-	-	-	1	1	-	-	-	-	-	0

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TABLE 5 (cont.)

NOT SURE	might be out of town	-	5	1	14	-	20	-	2	1	2	1	6
	parents might not allow or have other plans	-	-	5	4	-	9	2	1	-	1	2	6
	might be going to another program	-	1	2	2	-	5	1	-	1	-	-	2
	not sure, don't know	-	1	1	1	1	4	-	-	1	-	-	1
	maybe like to attend because of different activities, seems interesting	-	1	2	-	-	3	-	-	1	-	-	1
	have low scores	-	-	-	-	-	0	-	1	-	2	-	3
	might have to work	-	-	-	-	-	0	-	-	-	2	-	2
	not enough money	-	-	-	-	-	0	-	-	-	1	1	2
	not want to go	-	-	1	-	-	1	-	-	-	1	-	1
	never been to a summer program	-	-	-	2	-	2	-	-	-	-	-	0
	may be too far	-	-	-	-	-	0	-	-	-	1	-	1
	helping at home	-	-	-	1	-	1	-	-	-	-	-	0
	like school but not tests	-	-	1	-	-	1	-	-	-	-	-	0
	other things might come up	-	-	-	-	-	0	1	-	-	-	-	1

*Some girls provided more than one reason, so the total number of responses at a given school may exceed the number of girls at that school.

TABLE 6 METRO PARTICIPANTS' REASONS FOR RESPONSE TO "WHY DID YOU WANT TO COME TO METRO?"*

COUNTS

Reason supplied	Entering 7th Grade			Entering 8th Grade		
	7A (n=16)	7B (n=15)	TOTAL (n=31)	8A (n=12)	8B (n=14)	TOTAL (n=26)
will be fun, exciting	5	6	11	3	7	10
meet new people, friends or relatives go there	6	5	11	4	5	9
improve skills, improve grades, help with studies	4	5	9	3	1	4
learn things, challenging	3	4	7	2	5	7
do something good during summer instead of getting into trouble or wasting summer	3	3	6	1	2	3
will help me in future or in school	2	2	4	3	-	3
like to attend, interests me, good program	2	2	4	3	-	3
feel special, will be good for me, become someone	3	1	4	-	-	0
want to go to good high school	-	-	0	-	3	3
like or take classes	-	3	3	-	-	0
get away from home	-	-	0	1	-	1
help to communicate with others	1	-	1	-	-	0

* Some girls gave more than one reason so the total number of responses may exceed the number of girls in each group.

TABLE 7 TOP REASONS FOR WANTING TO ATTEND METRO: COMPARISON VERSUS METRO*

COUNTS
(percent)

Reason Supplied	Grade 6/METRO 7 Comparison (n=87)	Grade 6/METRO 7 METRO (n=31)	Grade 7/METRO 8 Comparison (n=78)	Grade 7/METRO 8 METRO (n=26)
will be fun, exciting	10 (11%)	11 (35%)	14 (19%)	10 (38%)
meet new people, friends or relatives go there	1 (1%)	11 (35%)	9 (12%)	9 (35%)
improve skills, improve grades, help with studies	0 (0%)	9 (29%)	10 (13%)	4 (15%)
learn things, challenging	3 (3%)	7 (23%)	7 (9%)	7 (27%)
do something good during summer instead of getting into trouble or wasting summer	0 (0%)	6 (19%)	2 (3%)	3 (12%)
like to attend, interests me, good program	15 (17%)	4 (13%)	12 (15%)	3 (12%)
will help me in future or in school	5 (6%)	4 (13%)	7 (9%)	3 (12%)

* Some girls provided more than one reason so the total number of responses may exceed the number of girls in each group.

TABLE 8 COMPARISON STUDENTS ANTICIPATION OF THE PARTS OF METRO THEY WOULD LIKE THE BEST AND THE PARTS THEY WOULD LIKE THE LEAST*

COUNTS
(percent)

Program Components

Grade	School	Math		Communication Skills		Science		Field Trips		Dance and Design		Team Sports		Career Speakers		Individual Counseling	
Grade	School	Like	Dislike	Like	Dislike	Like	Dislike	Like	Dislike	Like	Dislike	Like	Dislike	Like	Dislike	Like	Dislike
6	A (n = 3)	0 (0%)	1 (33%)	1 (33%)	0 (0%)	1 (33%)	0 (0%)	3 (100%)	0 (0%)	3 (100%)	0 (0%)	2 (67%)	1 (33%)	2 (67%)	0 (0%)	1 (33%)	1 (33%)
	B (n = 17)	4 (24%)	11 (65%)	3 (18%)	4 (24%)	4 (24%)	2 (12%)	16 (94%)	4 (24%)	12 (71%)	5 (29%)	9 (53%)	1 (6%)	7 (41%)	2 (12%)	5 (29%)	2 (12%)
	C (n = 25)	22 (88%)	2 (8%)	10 (40%)	10 (40%)	7 (28%)	18 (76%)	23 (92%)	2 (8%)	22 (88%)	2 (8%)	21 (84%)	3 (12%)	10 (40%)	12 (48%)	14 (56%)	2 (8%)
	D (n = 34)	19 (56%)	7 (21%)	10 (29%)	8 (24%)	9 (26%)	22 (65%)	33 (97%)	3 (9%)	26 (76%)	2 (6%)	29 (85%)	1 (3%)	11 (32%)	10 (29%)	4 (12%)	11 (32%)
	E (n = 8)	4 (50%)	4 (50%)	1 (12%)	2 (25%)	5 (63%)	1 (12%)	8 (100%)	0 (0%)	8 (100%)	0 (0%)	5 (63%)	4 (50%)	5 (63%)	2 (25%)	4 (50%)	1 (12%)
Total	**6th (n = 87)**	**49 (56%)**	**25 (29%)**	**25 (29%)**	**24 (28%)**	**26 (30%)**	**43 (49%)**	**83 (95%)**	**9 (10%)**	**71 (82%)**	**9 (10%)**	**66 (76%)**	**10 (11%)**	**35 (40%)**	**26 (30%)**	**28 (32%)**	**17 (20%)**
7	A (n = 4)	1 (25%)	3 (75%)	1 (25%)	2 (50%)	1 (25%)	2 (50%)	4 (100%)	0 (0%)	4 (100%)	0 (0%)	0 (0%)	3 (75%)	0 (0%)	2 (50%)	0 (0%)	1 (25%)
	B (n = 11)	5 (45%)	5 (45%)	3 (27%)	3 (27%)	5 (45%)	2 (18%)	10 (91%)	1 (9%)	11 (100%)	0 (0%)	8 (73%)	1 (9%)	4 (36%)	1 (9%)	5 (45%)	5 (45%)
	C (n = 20)	17 (85%)	2 (10%)	10 (50%)	2 (10%)	7 (35%)	13 (65%)	19 (95%)	0 (0%)	17 (85%)	1 (5%)	13 (65%)	4 (20%)	8 (40%)	7 (35%)	11 (55%)	4 (20%)
	D (n = 31)	14 (45%)	9 (29%)	11 (35%)	7 (23%)	1 (3%)	27 (87%)	26 (84%)	0 (0%)	24 (77%)	3 (10%)	29 (94%)	0 (0%)	16 (52%)	3 (10%)	4 (13%)	9 (29%)
	E (n = 12)	8 (67%)	3 (25%)	5 (42%)	5 (42%)	4 (33%)	7 (58%)	12 (100%)	0 (0%)	12 (100%)	0 (0%)	9 (75%)	3 (25%)	10 (83%)	1 (8%)	3 (25%)	7 (58%)
Total	**7th (n = 78)**	**45 (58%)**	**22 (28%)**	**30 (38%)**	**19 (24%)**	**18 (23%)**	**51 (65%)**	**71 (91%)**	**1 (1%)**	**68 (87%)**	**4 (5%)**	**59 (76%)**	**11 (14%)**	**38 (49%)**	**14 (18%)**	**23 (29%)**	**26 (33%)**

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* More than one choice was permitted for the questions determining the program components students might like the best as well as for program components students might like the least. Failure to like a component does not necessarily imply dislike.

TABLE 9 METRO PARTICIPANTS ANTICIPATION OF THE PARTS OF METRO THEY MIGHT LIKE THE BEST AND THE PARTS THEY MIGHT LIKE THE LEAST*

COUNTS
(percent)

Program Components

		Math		Communication Skills		Science		Field Trips		Dance and Design		Team Sports		Career Speakers		Individual Counseling	
Grade	Level	Like	Dislike	Like	Dislike	Like	Dislike	Like	Dislike	Like	Dislike	Like	Dislike	Like	Dislike	Like	Dislike
7	7A (n = 16)	7 (44%)	4 (25%)	6 (38%)	1 (6%)	6 (38%)	7 (44%)	15 (94%)	0 (0%)	14 (88%)	0 (0%)	9 (56%)	3 (19%)	3 (19%)	7 (44%)	7 (44%)	2 (12%)
	7B (n = 15)	8 (53%)	6 (40%)	6 (40%)	2 (13%)	9 (60%)	4 (27%)	15 (100%)	0 (0%)	12 (80%)	1 (7%)	15 (100%)	0 (0%)	4 (27%)	7 (47%)	4 (27%)	3 (20%)
Total	**7th (n = 31)**	**15 (48%)**	**10 (32%)**	**12 (39%)**	**3 (10%)**	**15 (48%)**	**11 (35%)**	**30 (97%)**	**0 (0%)**	**26 (84%)**	**1 (3%)**	**24 (77%)**	**3 (10%)**	**7 (23%)**	**14 (45%)**	**11 (35%)**	**5 (16%)**
8	8A (n = 12)	4 (33%)	5 (42%)	6 (50%)	1 (8%)	5 (42%)	2 (17%)	9 (75%)	0 (0%)	9 (75%)	1 (8%)	8 (67%)	0 (0%)	5 (42%)	3 (25%)	4 (33%)	3 (25%)
	8B (n = 14)	5 (36%)	4 (29%)	4 (29%)	4 (29%)	6 (43%)	3 (21%)	14 (100%)	0 (0%)	12 (86%)	2 (14%)	11 (79%)	1 (7%)	5 (36%)	3 (21%)	4 (29%)	2 (14%)
Total	**8th (n = 26)**	**9 (35%)**	**9 (35%)**	**10 (38%)**	**5 (19%)**	**11 (42%)**	**5 (19%)**	**23 (88%)**	**0 (0%)**	**21 (81%)**	**3 (12%)**	**19 (73%)**	**1 (4%)**	**10 (38%)**	**6 (23%)**	**8 (31%)**	**5 (19%)**

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* More than one choice was permitted for the questions determining the program components students might like the best as well as for program components students might like the least. Failure to like a component does not necessarily imply dislike.

TABLE 10 STUDENT RANKINGS OF THE BASIC FOUR SCHOOL SUBJECTS ON A SCALE FROM 1 (LIKE THE BEST) TO 6 (LIKE THE LEAST)[†]

SCHOOL SUBJECT

		Math			Science			English			Social Studies		
Grade	School	$\bar{x}$	s.d.	n*	$\bar{x}$	s.d.	n	$\bar{x}$	s.d.	n	$\bar{x}$	s.d.	n
6	A	4.00	2.00	3	2.00	1.41	2	2.00	1.00	3	5.00	1.00	3
	B	4.91	1.94	17	3.38	1.36	16	3.44	1.82	16	3.33	1.63	15
	C	1.56	0.79	23	5.08	1.47	25	3.24	1.13	25	4.68	1.25	22
	D	2.73	2.05	33	3.81	1.74	31	4.00	1.53	32	4.06	1.62	33
	E	2.43	1.81	7	3.29	1.11	7	5.00	1.20	8	3.00	1.15	7
7	A	4.00	1.63	4	3.00	2.31	4	3.25	1.26	4	5.75	0.50	4
	B	3.27	2.10	11	3.70	1.42	10	4.91	1.22	11	4.00	1.63	4
	C	1.75	1.41	20	5.67	0.69	18	3.15	1.23	20	4.00	1.30	20
	D	2.58	1.58	30	5.16	1.44	31	3.19	1.11	27	2.71	1.70	31
	E	2.55	1.13	11	4.40	1.26	10	4.75	1.29	12	4.17	2.17	12
METRO	7A	3.27	1.91	15	4.31	1.85	16	3.31	1.60	13	4.31	1.80	13
	7B	2.64	1.86	14	2.79	1.81	14	4.00	1.51	15	5.00	1.05	10
	8A	4.00	2.00	12	3.75	2.01	12	3.00	1.13	12	2.80	1.99	10
	8B	2.79	1.89	14	3.29	1.86	14	3.92	1.50	13	4.21	1.63	14

[†] If students listed more than six subjects and if the last subject listed was one of the basic four, it was given a ranking of 6 for the purposes of this table.

[*] For a given school, n varies among the subjects because some students failed to rank one or more of the four basic subjects.

TABLE 11 RESPONSES TO "DO YOU THINK THAT YOU WILL MAKE NEW FRIENDS THROUGH METRO?"

COUNTS
Response

Grade	School	Number	YES	NO	NOT SURE
6	A	3	3	-	-
	B	17	12	-	5
	C	25	18	-	7
	D	34	24	2	8
	E	8	7	-	1
7	A	4	3	-	1
	B	11	10	-	1
	C	20	15	-	5
	D	31	25	1	5
	E	12	10	1	1
METRO	7A	16	15	-	1
	7B	15	15	-	-
	8A	12	11	-	1
	8B	14	13	-	1
TOTALS	Comparison	165	127 (77%)	4 (2%)	34 (21%)
	METRO	57	54 (95%)	0 (0%)	3 (5%)

TABLE 12 NUMBER OF SELF-ESTEEM MEASURES BY GRADE AND RACIAL/ETHNIC GROUP AFTER ELIMINATION OF SELECTED RESULTS

	SCHOOL 6TH GRADE/METRO 7TH GRADE		SCHOOL 7TH GRADE/METRO 8TH GRADE	
School	Number	Ethnic Group	Number	Ethnic Group
B	9	Hispanic	10	Hispanic
C	11	Black	15	Black
D	20	Hispanic	21	Hispanic
E	5	Black	10	Black
METRO	11	Black	9	Black
	13	Hispanic	13	Hispanic

TABLE 13 SELF-ESTEEM MEASURES AT THE BEGINNING OF METRO BY RACIAL/ETHNIC GROUP AND BY GRADE

	7th					8th				
	Black		Hispanic			Black		Hispanic		
	(n=11)		(n=13)			(n=9)		(n=13)		
Measure	$\bar{x}$	s.d.	$\bar{x}$	s.d.	t	$\bar{x}$	s.d.	$\bar{x}$	s.d.	t
total	69.6	17.1	69.7	15.7	-0.015	67.1	22.6	63.8	18.9	0.372
general	36.4	7.7	35.7	8.0	0.217	34.0	10.9	32.8	9.0	0.282
social	13.1	3.7	11.7	3.0	1.024	12.7	3.5	11.1	3.9	0.985
home	9.8	4.9	12.8	2.4	-1.852	9.1	6.4	11.5	4.2	-1.066
school	10.4	4.5	9.5	4.4	0.494	11.3	3.7	8.5	4.5	1.538

* No values are significant at the .05 level.

TABLE 14 COMPARISON SCHOOLS: SELF-ESTEEM MEASURES IN THE SPRING BY SCHOOL - 6TH GRADE

SCHOOL

	B		C		D		E	
	(n=9)		(n=11)		(n=20)		(n=5)	
Measure	$\bar{x}$	s.d.	$\bar{x}$	s.d.	$\bar{x}$	s.d.	$\bar{x}$	s.d.
total	62.9	15.3	69.6	12.9	67.4	14.0	54.8	11.9
general	31.8	7.8	35.3	7.8	34.6	7.3	27.6	7.9
social	11.3	3.6	12.2	3.2	10.8	2.5	12.0	2.0
home	8.9	3.8	11.5	3.6	11.2	4.4	8.8	3.9
school	10.9	2.8	11.1	3.1	10.8	3.2	6.4	1.7

ANOVA

	SS	df	MS	F*
School	893	3	298	1.56
Error	7829	41	191	
Total	8722	44		

* not significant at the .05 level

TABLE 15 COMPARISON SCHOOLS: SELF-ESTEEM MEASURES IN THE SPRING BY SCHOOL - 7TH GRADE

	SCHOOL							
	B		C		D		E	
	(n=10)		(n=15)		(n=21)		(n=10)	
Measure	$\bar{x}$	s.d.	$\bar{x}$	s.d.	$\bar{x}$	s.d.	$\bar{x}$	s.d.
total	55.6	16.1	70.1	15.3	54.9	14.2	57.6	10.9
general	29.4	8.9	38.0	6.5	31.4	7.4	32.4	7.8
social	11.0	3.6	12.8	3.6	9.0	2.8	10.4	1.8
home	8.0	3.8	10.0	3.9	7.0	4.7	8.8	4.3
school	7.2	3.8	9.3	4.8	7.4	3.5	6.0	3.3

ANOVA

	SS	df	MS	F
School	2337	3	779	3.8*
Error	10677	52	205	
Total	13014	55		

* significant at the .05 level

TABLE 16 METRO: PRE-POST DIFFERENCES IN SELF-ESTEEM MEASURES BY RACIAL/ETHNIC GROUP AND BY GRADE

	7th						8th					
	Black			Hispanic			Black			Hispanic		
	(n=11)			(n=13)			(n=9)			(n=13)		
Measure	$\bar{x}$	s.d.	t	$\bar{x}$	s.d.	t	$\bar{x}$	s.d.	t	$\bar{x}$	s.d.	t
total	8.36	6.05	4.58*	-3.69	13.61	-0.98	6.67	21.73	0.92	5.69	5.59	3.67*
general	4.36	4.63	3.12*	-2.92	6.96	-1.52	4.00	10.0	1.20	2.62	4.27	2.22*
social	0.73	1.62	1.49	0	2.00	0	1.56	4.10	1.14	1.08	2.10	1.85
home	2.18	3.84	1.88	-2.15	4.58	-1.69	0.44	5.98	0.22	0.31	2.29	0.49
school	1.45	2.70	1.78	1.38	2.63	1.89	1.11	4.70	0.71	1.69	2.81	2.17

* significant at the .05 level (two-tail test)

TABLE 17 COMPARISON SCHOOLS: SPRING/FALL DIFFERENCES IN SELF-ESTEEM MEASURES - 6TH TO 7TH GRADE

	SCHOOL											
	B (n=9)			C (n=11)			D (n=20)			E (n=5)		
Measure	$\bar{x}$	s.d.	t	$\bar{x}$	s.d.	t	$\bar{x}$	s.d.	t	$\bar{x}$	s.d.	t
total	-6.67	12.33	-1.62	6.00	7.38	2.70*	-6.10	11.45	-2.38*	-1.20	12.21	-0.22
general	-2.22	8.27	-0.81	5.82	5.55	3.48*	-1.00	6.34	-0.71	1.20	6.42	0.42
social	-1.33	4.00	-1.00	0	1.55	0	1.40	4.01	1.56	-3.20	4.60	-1.56
home	-1.78	2.54	-2.10	0.36	3.67	0.33	-4.60	4.90	-4.20*	-0.40	2.97	-0.30
school	-1.78	4.74	-1.13	-0.55	2.54	-0.72	-1.70	3.06	-2.48*	1.20	3.03	0.89

* significant at the .05 level (two-tail test)

TABLE 18 COMPARISON SCHOOLS: SPRING/FALL DIFFERENCES IN SELF-ESTEEM MEASURES - 7TH TO 8TH GRADE

	SCHOOL											
	B (n=10)			C (n=15)			D (n=21)			E (n=10)		
Measure	$\bar{x}$	s.d.	t	$\bar{x}$	s.d.	t	$\bar{x}$	s.d.	t	$\bar{x}$	s.d.	t
total	1.20	15.64	0.24	4.93	10.56	1.81	-0.57	12.13	-0.22	4.60	10.11	1.44
general	0.60	9.05	0.21	0.27	5.01	0.21	-0.76	7.06	-0.49	3.00	8.71	1.09
social	1.00	3.02	1.05	1.20	2.11	2.21*	0.67	2.71	1.13	1.40	2.32	1.91
home	-0.60	5.50	-0.34	1.33	3.68	1.40	-0.95	4.22	-1.03	-0.60	4.81	0.39
school	0.40	4.60	0.27	1.47	2.97	1.92	0.48	3.28	0.67	0.80	3.55	0.71

* significant at the .05 level (two-tail test)

TABLE 19 COMPARISON SCHOOLS: SPRING/FALL COUNTS OF ATTITUDES TOWARD SCHOOL AND PLANS AFTER GRADUATION

			6th to 7th Grade						7th to 8th Grade					
Question	Response Choice		A (n=3)	B (n=9)	C (n=11)	D (n=20)	E (n=5)	Total (n=48)	A (n=4)	B (n=10)	C (n=15)	D (n=21)	E (n=10)	Total (n=60)
Overall, do you like school?	YES	Spring	2	4	9	11	4	30	4	5	12	16	8	45
		Fall	2	2	8	12	4	28	4	3	10	13	10	40
	NO	Spring	-	3	1	2	-	6	-	1	-	1	-	2
	Fall	-	4	2	1	1	8	-	4	3	2	-	9	
	NOT SURE	Spring	1	2	1	7	1	12	-	4	3	4	1	12
	Fall	1	3	1	7	-	12	-	3	2	6	-	11	
Do you expect to graduate from high school?	YES	Spring	3	8	11	19	4	45	4	10	15	20	10	59
		Fall	3	9	11	19	5	47	4	9	15	20	10	58
	NO	Spring	-	-	-	-	-	0	-	-	-	1	-	1
		Fall	-	-	-	-	-	0	-	-	-	-	-	0
	NOT SURE	Spring	-	1	-	1	1	3	-	-	-	-	-	0
		Fall	-	-	-	1	-	1	-	1	-	1	-	2
Which of the following best describes your future plans? (*One student made more than one selection.)	I do not plan to go to college at all.	Spring	1	-	-	-	-	1	-	-	-	1	-	1
		Fall	-	1	-	6	-	7	-	-	-	-	-	0
	I plan to take a few college courses but do not expect to graduate from college.	Spring	-	-	1	-	-	1	-	1	1	1	-	3
		Fall	-	-	-	-	-	0	-	-	-	-	-	0

TABLE 19 (cont.)

I expect to graduate from a technical program after high school.	Spring	1	2	1	2	-	6	-	-	-	4	1	5
	Fall	-	2	1	2	-	5	-	1	-	-	1	2
I expect to graduate from a two-year college.	Spring	-	1	1	2	-	4	-	2	1	2	1	6
	Fall	-	1	4	1	-	6	3	1	1	7	2	14
I expect to graduate from a four-year college.	Spring	2	5	7	10	4	28	4	7	14	7	8	40
	Fall	3	4	7	7	5	26	1	7	14	13	7	42
None of these describes me.	Spring	-	1	1	4	1	7	-	-	-	3	-	3
	Fall	-	1	-	4	-	5	-	-	-	-	-	0

TABLE 20 METRO: PRE/POST COUNTS OF ATTITUDES TOWARD SCHOOL AND PLANS AFTER GRADUATION

Question	Response Choice		7A (n=14)	7B (n=10)	8A (n=10)	8B (n=12)	TOTAL (n=46)
Overall, do you like school?	YES	Pre	8	9	7	10	34
	NO	Pre	2	-	1	-	3
	NOT SURE	Pre	4	2	2	2	10
Do you expect to graduate from high school?	YES	Pre	13	10	10	12	45
		Post	14	9	10	12	45
	NOT SURE	Pre	1	-	-	-	1
Which of the following best describes your future plans? (*One student made more than one selection.)	I do not plan to go to college at all.	Pre	-	-	1	-	1
		Post	-	-	-	-	0
	I plan to take a few college courses but do not expect to graduate from college.	Pre	-	1	-	-	1
		Post	1	-	-	-	1
	I expect to graduate from a technical program after high school.	Pre	1	-	-	-	1
		Post	1	-	-	-	1
	I expect to graduate from a two-year college.	Pre	2	-	-	-	2
		Post	-	1	-	-	1
	I expect to graduate from a four-year college.	Pre	10	8	9	11	38
		Post	11	9	9	11	40
	None of these describes me.	Pre	1	1	-	1	3
		Post	2	-	1	1	4

TABLE 21 ADVISOR PERCEPTIONS OF METRO'S EFFECTS ON GIRLS*

COUNTS

Question	Response	7A (n=15)	7B (n=14)	8A (n=16)	8B (n=15)	TOTAL (n=60)
At the beginning of METRO, how outgoing did this girl appear to be? How outgoing does this girl appear to be now? *indicates a positive change	from very outgoing to very outgoing	1	-	3	2	6
	from somewhat outgoing to very outgoing*	2	1	1	1	5
	from somewhat outgoing to somewhat outgoing	3	-	3	4	10
	from somewhat shy to very outgoing*	1	1	1	1	4
	from somewhat shy to somewhat outgoing*	4	8	-	3	15
	from somewhat shy to somewhat shy	2	1	3	1	7
	from very shy to very outgoing*	-	-	-	1	1
	from very shy to somewhat outgoing*	2	2	1	2	7
	from very shy to somewhat shy*	-	1	4	-	5
What changes, if any, have you noticed in this girl during the METRO program?	opened up, less shy, speaks up	4	6	4	4	18
	friendlier, has made friends, talks with others	4	6	2	4	16

TABLE 21 (cont.)

more confident, more mature, higher self-esteem	2	1	3	4	10
trying to change attitude and learn from situations, learning to cooperate and listen	3	-	3	2	8
talks about family and goals or things that might be uncomfortable	-	-	3	3	6
not much, seemed bored, enthusiasm for METRO waned, very dependent	2	-	3	2	7
happier, learning to be patient	-	2	-	2	4
cares about METRO, family	-	-	-	3	3
respects authority, assuming leadership, learning discipline	2	-	1	-	3
completely changed for better, softened rough exterior	-	-	-	2	2
affectionate with classmates, aware of others	-	-	1	1	2
honest	-	-	1	1	2
still can't talk about herself	-	-	1	-	1
asks questions	-	1	-	-	1

TABLE 21 (cont.)

What has this girl had to say about her experiences at METRO?	liked it, liked aspects of it, likes people, had fun	8	10	11	13	42
	liked making friends, learned importance of having friends	4	6	3	5	18
	learned a lot, learned about values/virtues	2	6	-	-	8
	only positive experiences, gave her a new outlook on things	-	2	3	1	6
	helped her feel better about herself, be more self-confident, helped change personally and academically	-	1	2	2	5
	would like to come again	2	2	-	-	4
	nice comments at beginning, ok	2	-	-	1	3
	will assist her to get into good high school	-	-	-	2	2
	disappointed this year, missed ballet class	-	-	2	-	2
	unsure	1	1	-	-	2
	good atmosphere, challenging	1	1	-	-	2

TABLE 21 (cont.)

	experiences help her see how to go through tough times with positive attitude	1	-	-	-	1
	was bored and didn't want to do schoolwork, academics a little bit of pain	1	-	-	1	2
	done exciting things	1	-	-	-	1
	well-treated	-	-	-	1	1
	not boring	-	-	1	-	1
What qualities, if any, has METRO brought out in this girl?	friendship, learned what it means to be a friend, learned to care about people	5	7	6	7	25
	courtesy, politeness, hope, cheerfulness, kindness, generosity, patience, responsibility, leadership	6	5	5	4	20
	more confident, more trusting	4	1	5	3	13
	hard worker, disciplined and conscientious	-	2	3	5	10
	blossomed in letting personality show, learned to be good person, learned to express herself	4	2	-	-	6

TABLE 21 (cont.)

cooperates, shares with others	1	4	-	-	5
open in advising, accepts shortcomings more	-	2	2	-	4
none	-	-	3	-	3
respects others, respects authority	2	-	-	-	2
determined/caring in goal setting	-	-	1	1	2
more artistic	1	-	-	-	1
developed a desire to pray	1	-	-	-	1
developed sports skills	-	1	-	-	1
very proud	-	1	-	-	1
not one to talk to adults	-	-	1	-	1
doesn't use leadership in right way	-	-	1	-	1
most improved in math	-	-	-	1	1
more able to cope in new circumstances	-	-	-	1	1

*Some advisors supplied more than one response to a question so totals may exceed the number of girls in each group.

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TABLE 22 PARENT PERCEPTIONS OF METRO'S EFFECTS ON GIRLS*

Question	Response	7th Grade		8th Grade			
		Black (n = 6)	Hispanic (n = 4)	Black (n = 8)	Hispanic (n = 15)	Other† (n = 5)	Total (n = 38)
What has your daughter had to say about her experiences at METRO?	enjoyed herself, enjoyed classes, loved trips, enjoyed meeting and interacting with people, had fun	4	3	8	10	4	29
	learned a lot, learned math, learned to negotiate, learned values	6	1	3	-	1	11
	good program, great experiences, positive experience, happy about program, interesting	-	2	3	4	-	9
	made friends	3	-	-	1	1	5
	program was better last year	-	-	-	3	-	3
	talked about art/sports, liked guest speakers	2	-	-	-	-	2
	like a different person, METRO is where she finds herself	-	-	-	2	-	2
	counselors nice	-	-	-	2	-	2
	wishes program was all year	1	-	-	-	-	1
	involved in a lot	1	-	-	-	-	1
	alternates between not wanting to go and things are fun	-	-	-	-	1	1
	too hot	-	-	-	1	-	1
Has your daughter made new friends through METRO?	YES	6	3	7	14	5	35
	NO	-	1	-	1	-	2
Before METRO, how outgoing was your daughter?	from very outgoing to very outgoing	2	-	1	4	1	8
	from somewhat outgoing to very outgoing*	2	-	4	3	1	10
How outgoing does your daughter appear to be now?	from somewhat outgoing to somewhat outgoing	-	1	-	3	2	6
	from somewhat shy to very outgoing*	1	-	1	1	-	3

TABLE 22 (cont.)

* indicates a positive change	from somewhat shy to somewhat outgoing*	1	2	-	3	-	6
	from somewhat shy to somewhat shy	-	-	1	-	-	1
	from very shy to very outgoing*	-	-	-	-	1	1
	from very shy to somewhat outgoing	-	-	1	-	-	1
What changes, if any, have you noticed in your daughter that are due to her involvement in METRO?	more determined, sure of herself, knows herself better, more outgoing, gained in maturity	3	-	5	3	1	12
	speaks clearer, expresses herself better	2	-	2	4	1	9
	teaching herself to type, practicing Spanish, math improved, reading improved, talking more about school	5	-	2	1	1	9
	behavior better, more responsible, more attentive	-	-	-	3	1	4
	cares about others, learned to share, more understanding	-	-	2	2	-	4
	concerned about current events, talks about different activities	-	-	3	-	-	3
	much progress noticed, attitude inproved	-	-	-	2	1	3
	enthused about program, good program	-	2	-	-	-	2
	none	1	2	-	-	-	3
	teachers don't always tell the truth, teachers don't always know what they're teaching	-	-	-	2	-	2
	made friends, more team oriented	-	-	-	1	1	2
	thinks about future more seriously, now interested in education	1	-	-	1	-	2
	more aggressive	-	-	1	-	-	1
	getting happier about talents	1	-	-	-	-	1
	learned to travel on her own	1	-	-	-	-	1
	demanding about being prompt	1	-	-	-	-	1

TABLE 22 (cont.)

What qualities, if any, has METRO brought out in your daughter?	more outgoing, speaks up more, more confidence in herself, willing to use her intelligence	5	-	2	1	-	8
	more sociable, openness to talk, learned to be friends with people of all races	-	-	-	5	3	8
	sharing, thoughtfulness, nice person	-	-	2	2	1	5
	none	-	1	-	2	1	4
	more responsible with chores, obedient	-	1	1	2	-	4
	has more direction, more independent, sets goals and can reach them	2	-	1	-	-	3
	better team player, sense of sportsmanship more acute	-	-	2	-	1	3
	expresses creativity openly, open in thoughts	-	-	2	1	-	3
	helped think about future, better person with better education	-	-	-	3	-	3
	morality	-	-	-	2	-	2
	to be proud of where she comes from, to appreciate different points of view	2	-	-	-	-	2
	learning ability, math	-	-	2	-	-	2
	more particular at being organized	1	-	-	-	-	1
	shyness	-	-	1	-	-	1
	good school	-	1	-	-	-	1
Would you like to see your daughter attend METRO again? Why or why not?	YES	1	1	-	5	1	8
	YES – grow mentally, helped her a lot, helped to keep striving for goals	3	1	3	1	1	9
	YES – liked coming, had fun	3	-	3	-	1	7
	YES – learning over summer	1	1	2	2	1	7
	YES – good program, good things to say	1	1	2	1	-	5
	YES – make aware of achievements, can accomplish more from METRO	1	-	1	-	-	2
	YES – meet other people, see new places	-	2	-	1	-	3

TABLE 22 (cont.)

	YES – help prepare for future	-	-	-	2	-	2
	YES – if at another location	-	-	-	2	-	2
	YES – teaches how to act away from parents	-	-	1	-	-	1
	YES – love for her to attend	-	-	-	1	-	1
	YES – teachers, classmates care	-	-	-	1	-	1
Would you recommend METRO to other parents? Why or why not?	YES	-	1	-	3	-	4
	YES – pleased with program, good program	-	1	2	5	1	9
	YES – one of best things to happen, has positive influence, keep off streets	2	1	3	1	-	7
	YES – brings out better qualities, helps with self confidence, learns to deal with different situations	3	1	-	2	-	6
	YES – educational reasons, helps girls prepare academically and spiritually	1	1	2	1	2	7
	YES – like individual attention daughter gets, like professional attitudes of staff, relief to know kids in good hands	-	-	2	1	1	4
	YES – good for Blacks, different ethnic groups come together	2	-	-	-	1	3
	YES – perfect program when parents don't have time for trips, very convenient	-	-	1	1	-	2
	YES – girls exchange friendship/ideas, girls are able to be kids while taking on responsibility	-	-	-	2	-	2
	YES – sharing responsibility	1	-	-	-	-	1
	YES – always recommend	-	-	-	1	-	1
	YES – METRO different than all other programs	-	-	-	1	-	1
	YES – but maybe for those having a hard time at school or home	-	-	-	-	1	1

TABLE 22 (cont.)

What other comments would you like to make about METRO?	best program for young ladies, very positive, keep it going	3	1	3	5	1	13
	helps a lot, improves character, meets others her age of different ethnic backgrounds	3	-	1	3	-	7
	interested in expanding and duplicating METRO, like program to last all summer	1	-	1	1	1	4
	love it, wonderful, great	1	-	2	1	-	4
	grateful for METRO's help, because of program children will be somebody	-	-	-	2	-	2
	maybe we can unite to find a permanent location, prior location better	-	-	-	1	1	2
	nice school	-	1	-	-	-	1
	need more emphasis on extracting hidden qualities, work to make better	-	-	1	-	1	2
	developed close friends quickly	-	-	-	-	1	1
	none	-	-	1	-	-	1

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* Some parents provided more than one response per question so totals may exceed the number of girls in each group.

† Other includes responses for girls who were neither Black nor Hispanic, responses for which a racial/ethnic group was not reported, and responses for families with more than one daughter at METRO.

TABLE 23 PARTICIPANT COMMENTS ON THE EFFECTS OF METRO*

Question	Response	COUNTS 7A (n=14)	 7B (n=15)	 8A (n=16)	 8B (n=15)	 TOTAL (n=60)
Suppose someone asked you "What's the best thing about METRO?" How would you answer them?	meet new people, people at METRO, communication between people	2	5	4	5	16
	field trips	5	3	4	1	13
	art class	3	4	2	1	10
	teaches you more in the classes, learn new things	3	2	2	3	10
	teachers, relationship between teachers and yourself, helpfulness of teachers	-	2	-	5	7
	advising	-	3	-	4	7
	sports	-	1	4	2	7
	science	1	1	1	3	6
	educational place, good program	-	-	2	3	5
	character development class	3	-	2	-	5
	communication skills	-	-	3	-	3
	fun, interesting	1	1	1	-	3
	atmosphere of love, nobody teases you	-	2	-	-	2
	math	-	-	-	1	1
	career speakers	1	-	-	-	1
	answer them in nice ways	1	-	-	-	1

TABLE 23 (cont.)

Suppose the same person asked you "What's the worst thing about METRO?" How would you answer them?	nothing, METRO is the best	1	5	2	5	13
	lunch	-	-	9	2	11
	all the classes, classes too short, homework	4	3	1	3	11
	temperature, no air-conditioning	4	1	3	1	9
	math	-	4	-	2	6
	sports	3	-	1	-	4
	science	2	1	-	-	3
	communication skills	-	2	-	1	3
	character development	-	1	-	2	3
	only 5 weeks, days I missed	-	-	-	3	3
	no ballet or drama	-	-	-	1	1
	field trips	-	1	-	-	1
	answer in mean ways	1	-	-	-	1
	don't know	-	-	1	-	1
If someone were to ask you whether or not they should attend METRO, what would you tell them? Why?	YES- fun, have a good time, new experience, nice	5	3	10	7	25
	YES- learn more	3	4	6	4	17
	YES- meet new friends, do things together	2	4	3	5	14
	YES- helps you	-	3	5	3	11
	YES- your decision, better than sitting around house, need to care about study habits	3	1	1	2	7

TABLE 23 (cont.)

	YES- good program, makes you feel special	-	1	1	5	7
	YES- field trips great	2	1	-	-	3
	YES- make sure they have everything they say they have	1	3	-	-	4
	YES- *if you want to be bored, it's like school*	-	2	-	-	2
	YES- talk to staff members	-	1	-	-	1
	NO- not the fun it was supposed to be	1	-	-	-	1
	NO- don't know, didn't like	1	-	-	-	1
What influence do you think METRO has had in your life?	learned to have faith in myself, learned what I really am	4	3	3	2	12
	great influence, glad to have had chance to come	1	-	4	2	7
	math class, helped in studies	1	-	-	6	7
	learned things, made me learn, good learning experience	3	3	-	-	6
	go on no matter what, how to act, work harder	-	3	-	3	6
	insight on school, influences courses to take, have an education/college	-	-	5	1	6
	learned how to be a better person	-	4	-	1	5
	none, don't know	3	-	1	-	4
	communicate more, not be shy	-	-	2	1	3

TABLE 23 (cont.)

	METRO really ok, life is METRO	-	1	1	-	2
	first time to go to something like school in summer	-	-	1	-	1
	taught good sportsmanship	-	-	1	-	1
	to love God	-	-	1	-	1
	making friends is easier	-	-	-	1	1
What else would you like to say about METRO?	great program, loved it, inspirational place	3	3	11	4	21
	fun	6	-	2	6	14
	meet new people, liked everybody, people take time to help you	2	1	3	2	8
	helps you get prepared for school, learned a lot	-	1	4	3	8
	didn't enjoy it, didn't like certain aspects, get rid of one of teachers, more fun last year	3	1	-	1	5
	hope to come next year, will miss it	2	-	2	-	4
	advising was great	-	-	-	2	2
	lunches not good	-	-	-	2	2
	helps you become a better person, have confidence in yourself	-	-	-	2	2
	won't come back	-	2	-	-	2
	won't be sitting around doing the same old thing	-	1	-	-	1

*Some girls provided more than one response to a question so totals may exceed the number of girls in each group.

TABLE 24 METRO: COMPARISONS/COMMENTS ABOUT THE CLASSES*

QUESTION	RESPONSES	COUNTS				
		7A (n=14)	7B (n=15)	8A (n=16)	8B (n=15)	TOTAL (n=60)
How do you feel about your math class?	liked, fun, loved, ok	9	8	11	5	33
	positive comments about teacher	6	5	2	-	13
	learned a lot, now understand, learned specific content	1	3	6	3	13
	exciting, interesting	-	-	-	5	5
	harder, challenge	1	-	-	1	2
	negative comparison to school	-	2	-	-	2
	didn't like	5	2	2	4	13
How was your math class at METRO different from your math class at school?	METRO explains, helps you, has more time for you	2	2	7	5	16
	METRO is fun, interesting, exciting	1	3	4	6	14
	school-more negative	-	5	2	2	9
	METRO has more homework, faster pace, learn more	4	1	-	-	5
	books different, easier, teachers different	1	2	2	3	8

TABLE 24 **(cont.)**

	METRO is harder, think/read more	2	-	1	2	5
	METRO-negative comments	-	4	-	-	4
	calculators at METRO	-	3	1	-	4
	different ways of doing things, projects, content comments	-	2	1	-	3
	school-more positive comment	1	-	1	1	3
	no difference	4	2	-	2	8
Has the METRO math class changed your attitude toward math? If so, how?	YES-learned, understand math	1	4	3	4	12
	YES-fun, important , not scared, helps with other subjects	3	-	4	-	7
	YES-like it more now	-	-	3	2	5
	YES-*faster, harder, now don't like*	3	2	-	-	5
	YES-more to think about, saw a different side of math	1	1	-	-	2
	YES-*school less boring*	-	-	-	1	1
	YES-know calculator	1	-	-	-	1
	NO-liked math before	1	2	1	2	6

TABLE 24 (cont.)

	NO-same math as in school, still don't like	-	1	-	2	3
	NO	7	5	5	4	21
Has the METRO math class changed your attitude toward taking algebra? If so, how?	YES-seems easy, makes sense, interesting, seems fun	3	1	5	6	15
	YES-learn more about, look forward to, different usage of work, didn't like before, need math	1	-	2	2	5
	YES-algebra harder, challenge	1	-	1	-	2
	NO-take anyway	2	-	-	2	6
	NO-already had, first time taking algebra	-	2	2	-	4
	NO	7	4	3	3	17
	no comment, don't know, might take	-	1	1	1	3
How was your science class at METRO different from your science class at school?	METRO- has labs, experiments, not just paperwork	9	7	6	8	30
	METRO-fun, interesting, positive comment	2	2	3	4	11
	school-negative comments	-	4	3	-	7
	METRO-gives information, learn, understand	-	-	3	3	6

TABLE 24 (cont.)

	school-positive comments	-	2	2	-	4
	school-no labs, experiments, books	3	-	-	-	3
	METRO-teachers better	-	-	-	2	2
	METRO-negative comment	1	1	-	-	2
	different, school has books	1	1	-	-	2
	no difference	1	1	1	1	4
In what ways did the character development class help you?	learn about religion, learn about God	7	4	5	7	23
	learn how to feel about myself, others	8	15	6	5	34
	learn to shoot for goals, study	1	-	4	-	4
	learn new things about life, being obedient	-	3	-	1	4
	understand right/wrong	-	-	-	2	2
	career speakers, change	1	-	-	1	2
	had fun	-	1	-	-	1
	didn't help, already knew this	-	1	1	4	6
Describe how helpful you found your communications skills class.	helped with public speaking, speeches, communicating	6	8	10	11	35
	helped with writing, editing	6	6	2	-	14

TABLE 24 (cont.)

	learned about religion/ oneself, laugh at mistakes	1	0	1	4	6
	fun, favorite class	-	1	4	-	5
	liked projects	1	-	-	2	2
	career aspects	-	1	1	-	2
	not helpful	2	-	1	1	4
	don't know	-	-	-	1	1
How do you feel about the fine arts class? Was it a good use of your time?	fun, liked, loved	9	9	9	13	40
	learned	-	2	3	4	9
	like arts	-	-	3	-	3
	relaxing, interesting	-	2	1	-	3
	express feelings	1	-	-	-	1
	teacher artistic	-	-	-	1	1
	YES	10	14	14	15	53
	NO	1	-	-	-	1
What comments do you have to make about sports?	fun, liked	6	7	8	10	31
	learned rules, games	2	6	5	7	20
	tiring, sweaty, hot	2	3	1	1	7
	worked out, lose weight	3	-	1	2	6
	make friends	-	1	1	-	2

TABLE 24 (cont.)

	play games between classes, more time to play	-	-	1	1	2
	no comment, misc.	3	1	3	1	8
	didn't like	2	-	-	-	2

*Some girls responded with more than one comment to a question so totals may exceed the number of girls in each group.

TABLE 25 METRO PARTICIPANTS: PRE/POST DIFFERENCES IN THE PARTS OF THE PROGRAM LIKED THE BEST/LIKED THE LEAST*

Program component		7A		7B		Total 7th		8A		8B		Total 8th	
		Like	Dislike	Like	Dislike	Like	Dislike	Like	Dislike	Like	Dislike	Like	Dislike
math	Pre	7	3	6	5	13 (52%)	8 (32%)	4	4	5	4	9 (39%)	8 (35%)
	Post	5	8	5	6	10 (40%)	14 (56%)	5	4	8	2	13 (57%)	6 (26%)
communication skills	Pre	5	1	5	1	10 (40%)	2 (8%)	6	1	4	3	10 (43%)	4 (17%)
	Post	4	8	4	6	8 (32%)	14 (56%)	8	1	7	3	15 (65%)	4 (17%)
science	Pre	4	7	6	3	10 (40%)	10 (40%)	5	2	5	3	10 (43%)	5 (22%)
	Post	6	6	5	3	11 (44%)	9 (36%)	5	6	10	0	15 (65%)	6 (26%)
field trips	Pre	14	0	11	0	25 (100%)	0 (0%)	9	0	12	0	21 (91%)	0 (0%)
	Post	12	1	10	1	22 (88%)	2 (8%)	9	0	12	0	21 (91%)	0 (0%)
dance and design	Pre	12	0	9	0	21 (84%)	0 (0%)	8	1	10	2	18 (78%)	3 (13%)
fine arts	Post	13	1	9	1	22 (88%)	2 (8%)	9	0	12	0	21 (91%)	0 (0%)
team sports	Pre	9	1	11	0	20 (80%)	1 (4%)	7	0	10	1	17 (74%)	1 (4%)
	Post	7	3	9	1	16 (64%)	4 (16%)	10	0	11	0	21 (91%)	0 (0%)
career speakers	Pre	2	6	2	7	4 (16%)	13 (52%)	5	3	5	1	10 (43%)	4 (17%)
	Post	7	0	5	2	12 (48%)	2 (8%)	6	2	8	3	14 (61%)	5 (22%)
individual counseling	Pre	6	2	3	3	9 (36%)	5 (20%)	4	3	4	2	8 (35%)	5 (22%)
	Post	8	4	7	0	15 (60%)	4 (16%)	4	3	8	3	12 (52%)	6 (26%)
number of girls		14		11		25		11		12		23	

* Failure to like a program component does not necessarily imply dislike.

TABLE 26 METRO: PRE/POST DIFFERENCES IN ATTITUDE RESPONSES TOWARD MATHEMATICS BY RACIAL/ETHNIC GROUP AND BY GRADE

NUMBER OF GIRLS
(percent)

		AGREE				DISAGREE			
		7th		8th		7th		8th	
Question		Black (n=11)	Hispanic (n=14)	Black (n=9)	Hispanic (n=13)	Black	Hispanic	Black	Hispanic
Mathematics is an interesting subject.	Pre	8 (73%)	9 (64%)	5 (56%)	5 (38%)	0 (0%)	2 (14%)	0 (0%)	1 (8%)
	Post	6 (55%)	11 (79%)	9 (100%)	10 (77%)	1 (9%)	0 (0%)	0 (0%)	0 (0%)
I like mathematics.	Pre	7 (64%)	9 (64%)	5 (56%)	6 (46%)	3 (27%)	3 (21%)	2 (22%)	6 (46%)
	Post	5 (45%)	8 (57%)	7 (78%)	8 (62%)	0 (0%)	1 (7%)	2 (22%)	1 (8%)
I enjoy working word problems.	Pre	6 (55%)	5 (36%)	4 (44%)	3 (23%)	3 (27%)	5 (36%)	3 (33%)	6 (46%)
	Post	5 (45%)	1 (7%)	3 (33%)	1 (8%)	4 (36%)	8 (57%)	3 (33%)	6 (46%)
Mathematics is confusing to me.	Pre	4 (36%)	7 (50%)	3 (33%)	5 (38%)	4 (36%)	6 (43%)	4 (44%)	6 (46%)
	Post	1 (9%)	3 (21%)	2 (22%)	2 (15%)	7 (64%)	9 (64%)	5 (56%)	8 (62%)

Table 26 (cont.)

There is nothing creative about mathematics; it is just memorizing formulas and things.	Pre	2 (18%)	1 (7%)	3 (33%)	2 (15%)	7 (64%)	10 (71%)	4 (44%)	6 (46%)
	Post	1 (9%)	1 (7%)	1 (11%)	0 (0%)	8 (73%)	11 (79%)	7 (78%)	10 (77%)
Other than going to the store, I really don't use math very much outside of class.	Pre	2 (18%)	0 (0%)	1 (11%)	3 (23%)	9 (82%)	14 (100%)	8 (89%)	9 (69%)
	Post	1 (9%)	2 (14%)	1 (11%)	2 (15%)	10 (91%)	11 (79%)	8 (89%)	10 (77%)
Outside of science and engineering, there is little need for mathematics in jobs.	Pre	0 (0%)	2 (14%)	1 (11%)	1 (8%)	10 (91%)	11 (79%)	8 (89%)	9 (69%)
	Post	1 (9%)	1 (7%)	1 (11%)	1 (8%)	10 (91%)	11 (79%)	6 (67%)	12 (92%)

TABLE 27 COMPARISON SCHOOLS: SPRING/FALL DIFFERENCES IN ATTITUDE RESPONSES TOWARD MATHEMATICS - 6TH TO 7TH GRADE

Question		AGREE (in percent)					DISAGREE (in percent)					TOTAL NUMBER OF STUDENTS†				
		School					School					School				
		A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Mathematics is an interesting subject.	Spring	0	17	86	86	50	0	58	0	0	0	3	12	14	21	6
	Fall	0	25	36	81	67	33	25	0	0	17					
I like mathematics.	Spring	0	17	86	86	67	67	67	7	5	0	3	12	14	21	6
	Fall	0	17	50	76	67	0	50	0	5	17					
I enjoy working word problems.	Spring	0	25	21	33	33	33	67	50	33	50	3	12	14	21	6
	Fall	33	17	7	52	17	33	67	71	29	33					
Mathematics is confusing to me.	Spring	67	58	43	29	0	33	17	57	45	67	3	12	14	20	6
	Fall	67	50	0	10	20	0	25	86	45	80					
There is nothing creative about mathematics; it is just memorizing formulas and things.	Spring	67	18	29	11	0	0	27	36	67	50	3	11	14	18	6
	Fall	33	27	7	0	17	33	45	57	72	67					
Other than going to the store, I really don't use math very much outside of class.	Spring	0	42	21	21	0	100	33	79	63	50	3	12	14	19	6
	Fall	0	17	14	5	17	100	50	79	84	67					
Outside of science and engineering, there is little need for mathematics in jobs.	Spring	0	25	7	29	0	100	50	86	65	67	3	12	14	17	6
	Fall	0	33	14	12	17	100	58	86	71	83					

† Some girls failed to respond to a particular question. Hence, the number of respondents varies from question to question.

TABLE 28 COMPARISON SCHOOLS: SPRING/FALL DIFFERENCES IN ATTITUDE RESPONSES TOWARD MATHEMATICS - 7TH TO 8TH GRADE

		AGREE (in percent)					DISAGREE (in percent)					TOTAL NUMBER OF STUDENTS†				
		School					School					School				
Question		A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Mathematics is an interesting subject.	Spring	0	20	80	65	89	67	40	7	10	0	3	10	15	20	9
	Fall	33	30	80	60	44	0	30	0	10	11					
I like mathematics.	Spring	0	50	88	60	67	100	40	6	15	11	2	10	16	20	9
	Fall	50	40	81	65	67	0	30	6	15	11					
I enjoy working word problems.	Spring	0	0	19	21	60	67	70	44	63	10	3	10	16	19	10
	Fall	0	30	25	5	60	100	70	38	63	20					
Mathematics is confusing to me.	Spring	67	40	13	45	30	33	30	81	25	60	3	10	16	20	10
	Fall	0	30	0	35	30	67	20	75	30	50					
There is nothing creative about mathematics; it is just memorizing formulas and things.	Spring	0	40	44	25	20	67	50	50	65	70	3	10	16	20	10
	Fall	33	10	13	40	40	67	70	56	45	50					
Other than going to the store, I really don't use math very much outside of class.	Spring	0	30	19	35	40	33	50	75	50	60	3	10	16	20	10
	Fall	0	40	19	30	20	100	30	69	55	50					
Outside of science and engineering, there is little need for mathematics in jobs.	Spring	0	40	31	53	0	67	60	56	42	80	3	10	16	19	10
	Fall	33	40	19	32	10	67	60	56	68	90					

† Some girls failed to respond to a particular question. Hence, the number of respondents varies from question to question.

TABLE 29 SPRING/FALL DIFFERENCES IN ATTITUDE RESPONSES TOWARD MATHEMATICS: COMPARISON VERSUS METRO – 6TH TO 7TH GRADE*

		AGREE (percent)				DISAGREE (percent)				TOTAL NUMBER OF GIRLS†			
		Comparison		METRO		Comparison		METRO		Comparison		METRO	
Question		B	H	B	H	B	H	B	H	B	H	B	H
Mathematics is an interesting subject.	Spring	15 (65%)	20 (61%)	8 (73%)	9 (64%)	0 (0%)	7 (21%)	0 (0%)	2 (14%)	23	33	11	14
	Fall	9 (39%)	20 (61%)	6 (55%)	11 (79%)	2 (9%)	3 (9%)	1 (9%)	0 (0%)				
I like mathematics.	Spring	16 (70%)	20 (61%)	7 (64%)	9 (64%)	3 (13%)	9 (27%)	3 (27%)	3 (21%)	23	33	11	14
	Fall	11 (48%)	18 (55%)	5 (45%)	8 (57%)	1 (4%)	7 (21%)	0 (0%)	1 (7%)				
I enjoy working word problems.	Spring	5 (22%)	10 (30%)	6 (55%)	5 (36%)	11 (48%)	15 (45%)	3 (27%)	5 (36%)	23	33	11	14
	Fall	3 (13%)	13 (39%)	5 (45%)	1 (7%)	13 (57%)	14 (42%)	4 (36%)	8 (57%)				
Mathematics is confusing to me.	Spring	8 (36%)	13 (41%)	4 (36%)	7 (50%)	13 (59%)	11 (34%)	4 (36%)	6 (43%)	22	32	11	14
	Fall	3 (14%)	8 (25%)	1 (9%)	3 (21%)	16 (73%)	12 (38%)	7 (64%)	9 (64%)				
There is nothing creative about mathematics; it is just memorizing formulas and things.	Spring	6 (26%)	4 (14%)	2 (18%)	1 (7%)	8 (35%)	15 (52%)	7 (64%)	10 (71%)	23	29	11	14
	Fall	3 (13%)	3 (10%)	1 (9%)	1 (7%)	13 (57%)	18 (62%)	8 (73%)	11 (79%)				

Table 29 (cont.)

Other than going to the store, I really don't use math very much outside of class.	Spring	3 (13%)	9 (29%)	2 (18%)	0 (0%)	17 (74%)	16 (52%)	9 (82%)	14 (100%)	23	31	11	14
	Fall	3 (13%)	3 (10%)	1 (9%)	2 (14%)	18 (78%)	22 (71%)	10 (91%)	11 (79%)				
Outside of science and engineering, there is little need for mathematics in jobs.	Spring	1 (4%)	8 (28%)	0 (0%)	2 (14%)	19 (83%)	17 (59%)	10 (91%)	11 (79%)	23	29	11	14
	Fall	3 (13%)	6 (21%)	1 (9%)	1 (7%)	20 (87%)	19 (66%)	10 (91%)	11 (79%)				

* For METRO, Spring corresponds to Pre and Fall to Post. The METRO girls will be entering seventh grade in the fall.

† Some girls failed to respond to a particular question. Hence, the number of respondents varies from question to question.

TABLE 30 SPRING/FALL DIFFERENCES IN ATTITUDE RESPONSES TOWARD MATHEMATICS: COMPARISON VERSUS METRO - 7TH TO 8TH GRADE*

Question		AGREE (percent)				DISAGREE (percent)				TOTAL NUMBER OF GIRLS†			
		Comparison		METRO		Comparison		METRO		Comparison		METRO	
		B	H	B	H	B	H	B	H	B	H	B	H
Mathematics is an interesting subject.	Spring	20 (74%)	15 (50%)	5 (56%)	5 (38%)	3 (11%)	6 (20%)	0 (0%)	1 (8%)	27	30	9	13
	Fall	17 (63%)	15 (50%)	9 (100%)	10 (77%)	1 (4%)	5 (17%)	0 (0%)	0 (0%)				
I like mathematics.	Spring	20 (74%)	17 (57%)	5 (56%)	6 (46%)	4 (15%)	7 (23%)	2 (22%)	6 (46%)	27	30	9	13
	Fall	20 (74%)	17 (57%)	7 (78%)	8 (62%)	2 (7%)	6 (20%)	2 (22%)	1 (8%)				
I enjoy working word problems.	Spring	9 (31%)	4 (14%)	4 (44%)	3 (23%)	10 (34%)	19 (66%)	3 (33%)	6 (46%)	29	29	9	13
	Fall	10 (34%)	4 (14%)	3 (33%)	1 (8%)	11 (38%)	19 (66%)	3 (33%)	6 (46%)				
Mathematics is confusing to me.	Spring	7 (24%)	13 (43%)	3 (33%)	5 (38%)	20 (69%)	8 (27%)	4 (44%)	6 (46%)	29	30	9	13
	Fall	3 (10%)	10 (33%)	2 (22%)	2 (15%)	19 (66%)	8 (27%)	5 (56%)	8 (62%)				
There is nothing creative about mathematics; it is just memorizing formulas and things.	Spring	9 (31%)	9 (30%)	3 (33%)	2 (15%)	17 (59%)	18 (60%)	4 (44%)	6 (46%)	29	30	9	13
	Fall	7 (24%)	9 (30%)	1 (11%)	0 (0%)	16 (55%)	16 (53%)	7 (78%)	10 (77%)				

Table 30 (cont.)

Other than going to the store, I really don't use math very much outside of class.	Spring	7 (24%)	10 (33%)	1 (11%)	3 (23%)	19 (66%)	15 (50%)	8 (89%)	9 (69%)	29	30	9	13
	Fall	5 (17%)	10 (33%)	1 (11%)	2 (15%)	19 (66%)	14 (47%)	8 (89%)	10 (77%)				
Outside of science and engineering, there is little need for mathematics in jobs.	Spring	5 (17%)	14 (48%)	1 (11%)	1 (8%)	19 (66%)	14 (48%)	8 (89%)	9 (69%)	29	29	9	13
	Fall	5 (17%)	10 (34%)	1 (11%)	1 (8%)	20 (69%)	19 (66%)	6 (67%)	12 (92%)				

* For METRO, Spring corresponds to Pre and Fall to Post. The METRO girls will be entering eighth grade in the fall.

† Some girls failed to respond to a particular question. Hence, the number of respondents varies from question to question.

TABLE 31 METRO: PRE/POST DIFFERENCES IN ANTICIPATED MATHEMATICS COURSE SELECTION BY RACIAL/ETHNIC GROUP AND BY GRADE

Number of Girls
(percent)

Course		7th		8th	
		Black (n=11)	Hispanic (n=14)	Black (n=9)	Hispanic (n=13)
1st year algebra	Pre	8 (73%)	8 (57%)	9 (100%)	11 (85%)
	Post	9 (82%)	11 (79%)	8 (89%)	12 (92%)
geometry	Pre	9 (82%)	13 (93%)	6 (67%)	9 (69%)
	Post	10 (91%)	12 (86%)	8 (89%)	11 (85%)
2nd year algebra	Pre	7 (64%)	8 (57%)	4 (44%)	5 (38%)
	Post	8 (73%)	9 (64%)	8 (89%)	8 (62%)
precalculus	Pre	3 (27%)	4 (29%)	4 (44%)	1 (8%)
	Post	5 (45%)	11 (79%)	5 (56%)	4 (31%)
calculus	Pre	5 (45%)	9 (64%)	5 (56%)	5 (38%)
	Post	6 (55%)	10 (71%)	8 (89%)	5 (38%)
computer programming	Pre	10 (91%)	12 (86%)	8 (44%)	5 (62%)
	Post	11 (100%)	13 (93%)	8 (89%)	11 (85%)

TABLE 32 COMPARISON SCHOOLS: SPRING/FALL DIFFERENCES IN ANTICIPATED MATHEMATICS COURSE SELECTION BY GRADE

NUMBER OF GIRLS
(percent)

		6th to 7th Grade					7th to 8th Grade				
Course		A (n=3)	B (n=12)	C (n=14)	D (n=16)	E (n=6)	A (n=3)	B (n=10)	C (n=16)	D (n=18)	E (n=10)
1st year algebra	Spring	2 (67%)	5 (42%)	11 (79%)	11 (69%)	6 (100%)	3 (100%)	10 (100%)	14 (88%)	12 (67%)	7 (70%)
	Fall	3 (100%)	7 (58%)	14 (100%)	13 (81%)	4 (67%)	3 (100%)	10 (100%)	16 (100%)	18 (100%)	7 (70%)
geometry	Spring	2 (67%)	7 (58%)	8 (57%)	9 (56%)	5 (83%)	2 (67%)	8 (80%)	10 (63%)	11 (61%)	7 (70%)
	Fall	3 (100%)	6 (50%)	10 (71%)	12 (75%)	5 (83%)	3 (100%)	6 (60%)	12 (75%)	13 (72%)	8 (80%)
2nd year algebra	Spring	1 (33%)	5 (42%)	6 (43%)	9 (56%)	5 (83%)	1 (33%)	4 (40%)	11 (69%)	5 (28%)	3 (30%)
	Fall	2 (67%)	3 (25%)	8 (57%)	10 (63%)	2 (33%)	2 (67%)	7 (70%)	15 (94%)	12 (67%)	5 (50%)
precalculus	Spring	1 (33%)	2 (17%)	5 (36%)	7 (44%)	4 (67%)	0 (0%)	1 (10%)	2 (13%)	4 (22%)	1 (10%)
	Fall	2 (67%)	2 (17%)	8 (57%)	2 (13%)	1 (17%)	2 (67%)	3 (30%)	10 (63%)	5 (28%)	3 (30%)
calculus	Spring	0 (0%)	3 (25%)	5 (36%)	8 (50%)	4 (67%)	0 (0%)	0 (0%)	9 (56%)	2 (11%)	3 (30%)
	Fall	1 (33%)	2 (17%)	4 (29%)	8 (50%)	2 (33%)	1 (33%)	3 (30%)	5 (31%)	4 (22%)	3 (30%)
computer programming	Spring	3 (100%)	9 (75%)	11 (79%)	10 (63%)	5 (83%)	3 (100%)	4 (40%)	9 (56%)	16 (89%)	10 (100%)
	Fall	3 (100%)	9 (75%)	12 (86%)	13 (81%)	6 (100%)	2 (67%)	5 (50%)	9 (56%)	16 (89%)	10 (100%)

TABLE 33 SPRING/FALL DIFFERENCES IN ANTICIPATED MATHEMATICS COURSE SELECTION: COMPARISON VERSUS METRO*

NUMBER OF GIRLS
(percent)

		6th to 7th Grade				7th to 8th Grade			
		Comparison		METRO		Comparison		METRO	
Course		B (n=23)	H (n=28)	B (n=11)	H (n=14)	B (n=29)	H (n=28)	B (n=9)	H (n=13)
1st year algebra	Spring	19 (83%)	16 (57%)	8 (73%)	8 (57%)	24 (83%)	22 (79%)	9 (100%)	11 (85%)
	Fall	21 (91%)	20 (71%)	9 (82%)	11 (79%)	26 (90%)	28 (100%)	8 (89%)	12 (92%)
geometry	Spring	15 (65%)	16 (57%)	9 (82%)	13 (93%)	19 (66%)	19 (68%)	6 (67%)	9 (69%)
	Fall	18 (78%)	18 (64%)	10 (91%)	12 (86%)	23 (79%)	19 (68%)	8 (89%)	11 (85%)
2nd year algebra	Spring	12 (52%)	14 (50%)	7 (64%)	8 (57%)	15 (52%)	9 (32%)	4 (44%)	5 (38%)
	Fall	12 (52%)	13 (46%)	8 (73%)	9 (64%)	22 (76%)	19 (68%)	8 (89%)	8 (62%)
precalculus	Spring	10 (43%)	9 (32%)	3 (27%)	4 (29%)	3 (10%)	5 (18%)	4 (44%)	1 (8%)
	Fall	11 (47%)	4 (14%)	5 (45%)	11 (79%)	15 (52%)	8 (29%)	5 (56%)	4 (31%)
calculus	Spring	9 (39%)	11 (39%)	5 (45%)	9 (64%)	12 (41%)	2 (7%)	5 (56%)	5 (38%)
	Fall	7 (30%)	10 (36%)	6 (55%)	10 (71%)	9 (31%)	7 (25%)	8 (89%)	5 (38%)
computer programming	Spring	19 (83%)	19 (68%)	10 (91%)	12 (86%)	22 (76%)	20 (71%)	4 (44%)	8 (62%)
	Fall	21 (91%)	22 (79%)	11 (100%)	13 (93%)	21 (72%)	21 (75%)	8 (89%)	11 (85%)

* For METRO, Spring corresponds to Pre and Fall to Post.

TABLE 34 METRO: PRE/POST DIFFERENCES IN THE NUMBER OF ANTICIPATED MATHEMATICS COURSES BY RACIAL/ETHNIC GROUP AND BY GRADE

Number of Girls

Number of Courses*		7th		8th	
		Black (n=11)	Hispanic (n=14)	Black (n=9)	Hispanic (n=13)
0	Pre	0	0	0	0
	Post	0	0	0	1
1	Pre	2	2	1	2
	Post	1	0	0	0
2	Pre	1	3	1	5
	Post	2	3	1	1
3	Pre	5	4	4	5
	Post	3	2	1	8
4	Pre	2	3	2	1
	Post	1	4	3	1
5	Pre	1	2	1	0
	Post	4	5	4	2

*Girls responded to whether or not they planned to take first-year algebra, geometry, second-year algebra, precalculus, or calculus. Selection of computer programming is not included in the above results.

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TABLE 35 COMPARISON SCHOOLS: SPRING/FALL DIFFERENCES IN THE NUMBER OF ANTICIPATED MATHEMATICS COURSES

Number of Girls

Number of courses*		6th to 7th Grade A (n=3)	B (n=12)	C (n=14)	D (n=16)	E (n=6)	7th to 8th Grade A (n=3)	B (n=10)	C (n=16)	D (n=18)	E (n=10)
0	Spring	0	0	2	3	0	0	0	1	5	0
	Fall	0	1	0	1	0	0	0	0	0	1
1	Spring	1	6	3	2	0	0	0	1	2	3
	Fall	0	5	0	1	1	0	0	1	2	1
2	Spring	1	2	2	4	1	3	7	5	4	3
	Fall	0	3	4	4	2	2	3	3	6	2
3	Spring	1	4	3	0	1	0	3	3	5	4
	Fall	2	3	6	6	3	0	5	2	6	4
4	Spring	0	0	1	1	1	0	0	4	1	0
	Fall	0	0	2	3	0	0	2	5	0	1
5	Spring	0	0	3	6	3	0	0	2	1	0
	Fall	1	0	2	1	0	1	0	5	4	1

*Girls responded to whether or not they planned to take first-year algebra, geometry, second-year algebra, precalculus, or calculus. Selection of computer programming is not included in the above results.

TABLE 36 SPRING/FALL DIFFERENCES IN THE NUMBER OF ANTICIPATED MATHEMATICS COURSES: COMPARISON VERSUS METRO†

Number of Girls
(percent)

		6th to 7th Grade				7th to 8th Grade			
		Comparison		METRO		Comparison		METRO	
		B	H	B	H	B	H	B	H
Number of courses*		(n=23)	(n=28)	(n=11)	(n=14)	(n=29)	(n=28)	(n=9)	(n=13)
0	Spring	2 (9%)	3 (11%)	0 (0%)	0 (0%)	1 (3%)	5 (18%)	0 (0%)	0 (0%)
	Fall	0 (0%)	2 (7%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (8%)
1	Spring	4 (17%)	8 (29%)	2 (18%)	2 (14%)	4 (14%)	2 (7%)	1 (11%)	2 (15%)
	Fall	1 (4%)	6 (21%)	1 (9%)	0 (0%)	2 (7%)	2 (7%)	0 (0%)	0 (0%)
2	Spring	4 (17%)	6 (21%)	1 (9%)	3 (21%)	11 (38%)	11 (39%)	1 (11%)	5 (38%)
	Fall	6 (26%)	7 (25%)	2 (18%)	3 (21%)	7 (24%)	9 (32%)	1 (11%)	1 (8%)
3	Spring	5 (22%)	4 (14%)	5 (45%)	4 (29%)	7 (24%)	8 (29%)	4 (44%)	5 (38%)
	Fall	11 (48%)	9 (32%)	3 (27%)	2 (14%)	6 (21%)	11 (39%)	1 (11%)	8 (62%)
4	Spring	2 (9%)	1 (4%)	2 (18%)	3 (21%)	4 (14%)	1 (4%)	2 (22%)	1 (8%)
	Fall	2 (9%)	3 (11%)	1 (9%)	4 (29%)	6 (21%)	2 (7%)	3 (33%)	1 (8%)
5	Spring	6 (26%)	6 (21%)	1 (9%)	2 (14%)	2 (7%)	1 (4%)	1 (11%)	0 (0%)
	Fall	3 (13%)	1 (4%)	4 (36%)	5 (36%)	7 (24%)	4 (14%)	4 (44%)	2 (15%)

† For METRO, Spring corresponds to Pre and Fall to Post.

* Girls responded to whether or not they planned to take first-year algebra, geometry, second-year algebra, precalculus, or calculus. Selection of computer programming is not included in the above results.

TABLE 37 FORMER METRO PARTICIPANTS' PERCEPTIONS OF THE PROGRAM'S EFFECTS

Question	Response	Counts (n=7)
Had you ever attended a summer program before attending METRO? If so, what type of program was it?	NO	4
	Dare to Dream	1
	Univ. of Illinois computer camp	1
	camp	1
When did you first attend METRO? (Responses indicate frequency of METRO attendance.)	one summer	5
	two summers	2
	high school program	7
	leadership program	7
What made you want to attend METRO in the first place?	meet new people, help me be more friendly, made me feel at home	5
	find different environments, something different, get away from home	4
	learn things, help with homework	3
	way the program was presented, great presentation by speaker, liked what offered	3
	parents wanted me to go	2
	widen horizons	2
	Christian development	1
	fun	1

TABLE 37 (cont.)

What parts of METRO did you like the best? Why?	communication skills	7
	math, did good in algebra because of METRO	7
	leadership program, helped to be independent	4
	liked everything	1
	meet new people	1
	got help during school year	1
	bring Christianity to the things you do	1
What parts of METRO did you like the least? Why?	nothing	6
	lunch	1
What influence do you think METRO has had in your life?	teaches you to be what you want to be, you can achieve, you can go beyond what you thought	6
	helped me know I could help others, sense of duty in world	2
	helped me mature and learn to cope	2
	they have time for you and help you	2
	learned so much, emphasize academics	2
	opportunity to meet people of different races, never had a white friend before	2
	many ways, big part of life for three years	2

TABLE 37 (cont.)

If someone were to ask you whether or not they should attend METRO, what would you tell them?	meet new people, develop social skills, like a family	4
	fun	3
	learn things, an experience	3
	come, gets better every time	2
	productive here, academic work in general	2
	will help in more than one way	1
	depends on the type of person	1
Has there been any change in your school performance or your course program as a result of attending METRO? If so, what?	wasn't going to take math and science all four years, encouraged to take more math, without METRO there wouldn't have been algebra	4
	METRO pushed, would not have achieved without METRO	2
	YES- taught the basics but in more detail	1
	would have taken courses even without METRO	1
Are you planning to attend college? If so, where? Did METRO have any influence on your college preference?	planning to attend before	6
	planning to attend before but catalogs opened possibilities	1
	influenced ideas about career and college	1

APPENDIX B

METRO Interview Forms

Student Guidelines

Summer Schedule

METRO Achievement Program

PARENT INTERVIEW FORM

Student's Name ______________________________ Date _______________

Parents Present: _____ Mother _____ Father Other ______

Interviewer _____

1. Why do you want your daughter to come to METRO?

2. In what school subject does your daughter get the highest grades? Why?

3. In what school subject does your daughter get the lowest grades? Why?

   (Note: If there are concerns about grades or test scores, comment here.)

4. What does your daughter do in her free time?

5. Does your daughter talk much about her future? What kind of goals, plans, or dreams does she speak about?

   name of high school ____________________________________

   name of college/university ____________________________

6. What quality in your daughter do you want us to bring out?

7. If you had to pick one thing in your daughter that you want improved, what would it be?

8. Will your daughter attend all of METRO's classes and on time? Will you make sure she does? (vacation, doctor's appts., other programs)

9. Will you check your daughter's homework each day and encourage her to study for tests?

10. Would you come to a parent meeting on Sat., July 24, at 1:00 p.m.?

11. Are there any special family situations about which METRO should know to better help your daughter? (e.g. recent divorce, retarded sibling)

12. Awards:

    Certificate of Completion (19/24 days for summer)
    (9/12 days for fall or winter/spring)
    Perfect Attendance (present 10:00 to 3:00 each day during summer)
    (present 10:00 to 1:00 each day during fall or winter/spring)
    Subject Area Awards (summer only)

13. Character Development Class and Blue Brochure on Opus Dei

14. Payment Agreement Dates (see form)

15. Completion of all forms (especially signature)

    General Release Form
    Medical Release Form
    Payment Agreement Form
    Van Service Application
    Student Application

METRO Achievement Program

STUDENT INTERVIEW

1. What is your favorite subject? Is it your best?

2. Do you like school? Why or why not?

3. What do you do after school? On weekends?

4. What do you like best about your friends?

5. How do your friends describe you?

6. What kind of things do you do that help other people?

7. If you could travel to any place in the world, where would you like to go and why?

8. If you could meet or visit with any person or persons living or dead, who would you like to meet and why?

9. Why do you want to attend METRO?

METRO Achievement Program

STUDENT GUIDELINES
SUMMER, 1988

It is our pleasure to have you with us, as well as it is a privilege for you to come to the METRO Achievement Program. The following are some points of common sense and courtesy to help you benefit from your participation in our program.

1. Classes begin at 10:00 a.m. sharp. Please arrive at approximately 9:45 a.m. in order to begin at 10:00 a.m. Students should be punctual for the first class and all classes thereafter.
2. Call METRO by 10:00 a.m. if you will be absent or late. Also, please call if you need to leave METRO early.
3. Students who attend 19 complete days of METRO will receive a certificate of completion of the summer program at the awards ceremony.
4. Good behavior is expected in the chartered bus by all who use it. Those who misbehave will lose the privilege of all bus service.
5. Students are authorized to be in the first floor, basement, lobby, and mezzanine and not in any other part of the school building. Students who are not picked up by 3:00 p.m. should remain in or return to METRO until arrival of their ride.
6. Use the student's bathroom only.
7. Obedience to all staff members is expected of every student.
8. Always respect and treat with care the property of others.
9. All personal items should be labelled with indelible ink to minimize loss and confusion.
10. Classrooms are to be left in excellent order after each class: chairs straight, papers picked up from the floor and desks, books properly stored, and everything in its place.
11. Staff members will remove from the sports field for the rest of the period any student who:
    a) loses her temper,
    b) uses foul language,
    c) fails to cooperate or play as a team member, or

   d) cuts down other players or abuses them verbally or physically.

12. Shoes must be worn at all times.
13. Closed shoes are preferable because of sports each day.
14. Socks or stockings are required for ballet class.
15. A one-piece bathing suit or a T-shirt over a two-piece suit are necessary for the excursions to the Indiana Dunes.
16. Students should not bring valuable items (such as jewelry, walkman, etc.) to METRO.
17. Please do not carry excess money to METRO or on excursions.
18. No electronic games, comic books, magazines, radios, or tapes are to be brought to METRO or on excursions.
19. Permission is needed from a staff member for the use of the office phone.
20. Candy, gum, and soft drinks are not permitted.
21. METRO welcomes student visitors. Please contact the office ahead of time.
22. If a student does not want to participate in the city lunch program, please notify METRO on the first day of the program so that we can cancel her order.
23. The excursions are scheduled for the following Wednesdays:

    July 6: 10:00 a.m. to 4:00 p.m.
    July 13: 10:00 a.m. to 3:00 p.m.
    July 20: 10:00 a.m. to 4:30 p.m.
    July 27: 10:00 a.m. to 4:00 p.m.
    Aug. 3: 10:00 a.m. to 4:00 p.m.

    The bus service will follow this schedule. Your daughter will arrive home later on the dates indicated.

METRO ACHIEVEMENT SCHEDULE – SUMMER 1988

	7A		7B
10:00 – 10:35	COM. SKL.*		MATH
10:37 – 11:12	MATH		CHR. DEV.
11:14 – 11:49	CHR. DEV.†		SCIENCE
11:51 – 12:27	SCIENCE		COM. SKL.
12:30 – 12:47	LUNCH		LUNCH
12:50 – 1:45	FINE ARTS	12:50 – 1:00	GO TO PARK
		1:00 – 1:55	SPORTS
1:45 – 1:55	GO TO PARK		
1:55 – 2:50	SPORTS	1:55 – 2:05	GO TO METRO
2:50 – 3:00	GO TO METRO	2:05 – 3:00	FINE ARTS

(35 min. classes; 2 min. changes; 17 min. lunch; 55 min. arts/sports; 10 min. drives)

	8A		8B
10:00 – 10:10	GO TO PARK	10:00 – 10:54	FINE ARTS
10:10 – 11:04	SPORTS	10:54 – 11:04	GO TO PARK
11:04 – 11:14	GO TO METRO	11:04 – 11:58	SPORTS
11:14 – 12:08	FINE ARTS	11:58 – 12:08	GO TO METRO
12:10 – 12:27	LUNCH	12:10 – 12:27	LUNCH
12:30 – 1:06	SCIENCE		CHR. DEV.
1:08 – 1:44	CHR. DEV.		SCIENCE
1:46 – 2:22	MATH		COM. SKL.
1:24 – 3:00	COM. SKL.		MATH

(36 min. classes; 2 min. changes; 17 min. lunch; 54 min. arts/sports; 10 min. drives)

* COM. SKL. is communication skills.

† CHR. DEV. is character development.

APPENDIX C

Questionnaires

SCHOOL SPRING QUESTIONNAIRE

This page asks for some information about you. After filling out this page, please tear it off from the rest of the questionnaire. This page will be collected separately. DO NOT PUT YOUR NAME ON ANY OF THE OTHER PAGES.

ALL OF YOUR RESPONSES WILL BE KEPT CONFIDENTIAL. NO ONE AT YOUR SCHOOL OR AT THE METRO PROGRAM WILL KNOW HOW YOU RESPONDED.

Name ____

1. Which grade are you in this year?
   a. 6th grade b. 7th grade

2. You do not have to answer this question, but your response would be helpful. Which of the following best describes you?
   a. Caucasian (white)
   b. black
   c. Hispanic
   d. Asian
   e. other

3. Do you plan to attend summer school?
   a. yes b. no c. not sure

4. Do you plan to attend a summer program other than METRO?
   a. yes b. no c. not sure

5. If you plan to attend a summer program, please give a short description of it. Please tell where the program is located and what type of program it is.

Now that you have heard a talk about the METRO program, we would like to get your comments about the program. Please circle the answer to each question that best describes how you feel.

1. Which of the following parts of the METRO program do you think you might like the best? (There may be more than one choice.)
   a. math class
   b. communication skills class
   c. science class
   d. field trips
   e. dance and design class
   f. team sports
   g. career speakers
   h. individual counseling

2. Which of the following parts of the METRO program do you think you would like the least? (There may be more than one choice.)
   a. math class
   b. communication skills class
   c. science class
   d. field trips
   e. dance and design class
   f. team sports
   g. career speakers
   h. individual counseling

3. Would you like to attend METRO in the summer?
   a. yes b. no c. not sure

4. Please give a reason for your answer to question 3.

5. If you would like to attend METRO in the summer and if your application is accepted, do you know of any reason why you would not be able to attend? What would that reason be?

6. Do you think that you will make new friends through METRO?
   a. yes b. no c. not sure

The next few questions ask you about some of your feelings toward school or toward different school subjects.

7. Write down your subjects (math, science, English, social studies, and so forth) from the one you like the best to the one you like the least.

   a. ____________________ (like the best)

   b. ____________________

   c. ____________________

   d. ____________________

   e. ____________________

   f. ____________________ (like the least)

8. Overall, do you like school?
   a. yes b. no c. not sure

9. What about school do you think is the best part?

10. Do you expect to graduate from high school?
    a. yes b. no c. not sure

11. Which of the following best describes your future plans?
    a. I do not plan to go to college at all.
    b. I plan to take a few college courses but do not expect to graduate from college.
    c. I expect to graduate from a technical program after high school.
    d. I expect to graduate from a two-year college.
    e. I expect to graduate from a four-year college.
    f. None of these describes me.

12. What is your father's occupation? ____________________

13. What is your mother's occupation? ____________________

14. Has anyone in your family attended college?
    a. yes b. no c. not sure

15. Which of the following best describes your current home situation?
    a. I live with both parents.
    b. I live only with my mother.
    c. I live only with my father.
    d. I live with adults who are not my parents.

Some of the following statements express a feeling or belief which you may have toward mathematics or about studying mathematics. For these statements, fill in the choice that best describes your feelings or opinions. There are no right or wrong answers.

16. Mathematics is an interesting subject.
    a. agree b. disagree c. no opinion

17. I like mathematics.
    a. agree b. disagree c. no opinion

18. I enjoy working word problems.
    a. agree b. disagree c. no opinion

19. Mathematics is confusing to me.
    a. agree b. disagree c. no opinion

20. There is nothing creative about mathematics; it is just memorizing formulas and things.
    a. agree b. disagree c. no opinion

21. Other than going to the store, I really don't use math very much outside of class.
    a. agree b. disagree c. no opinion

22. Outside of science and engineering, there is little need for mathematics in jobs.
    a. agree b. disagree c. no opinion

23. This year my grade in math has been
    a. A b. B c. C d. D e. F

24. What math class do you plan to take next year?

    ____

25. Which of the following math courses do you expect to take before you leave high school? (Circle all the courses that you plan to take.)
    a. first-year algebra
    b. geometry
    c. second-year algebra
    d. pre-calculus
    e. calculus
    f. computer programming
    g. I do not plan to take any of these courses.

METRO PRE-QUESTIONNAIRE

This page asks for some information about you. After filling out this page, please tear it off from the rest of the questionnaire. This page will be collected separately. DO NOT PUT YOUR NAME ON ANY OF THE OTHER PAGES.

ALL OF YOUR RESPONSES WILL BE KEPT CONFIDENTIAL. NO ONE AT YOUR SCHOOL OR AT THE METRO PROGRAM WILL KNOW HOW YOU RESPONDED.

Name ____

1. Which grade did you just finish?
   a. 6th grade b. 7th grade

2. You do not have to answer this question, but your response would be helpful. Which of the following best describes you?
   a. Caucasian (white)
   b. black
   c. Hispanic
   d. Asian
   e. other

3. Have you ever attended METRO before?
   a. yes b. no

4. Have you ever attended a summer program other than METRO?
   a. yes b. no

5. If you have attended a summer program other than METRO, please give a short description of it. Please tell where the program was located and what type of program it was.

Now that you have enrolled in the METRO program, we would like to get your thoughts about the program. Please circle the answer to each question that best describes how you feel right now.

1. Which of the following parts of the METRO program do you think you might like the best? (There may be more than one choice.)
   a. math class
   b. communication skills class
   c. science class
   d. field trips
   e. dance and design class
   f. team sports
   g. career speakers
   h. individual counseling

2. Which of the following parts of the METRO program do you think you might like the least? (There may be more than one choice.)
   a. math class
   b. communication skills class
   c. science class
   d. field trips
   e. dance and design class
   f. team sports
   g. career speakers
   h. individual counseling

3. Why did you want to come to METRO?

4. Do you think that you will make new friends through METRO?
   a. yes b. no c. not sure

The next few questions ask you about some of your feelings toward school or toward different school subjects.

5. Write down your subjects (math, science, English, social studies, and so forth) from the one you like the best to the one you like the least.

   a. ______________________ (like the best)

   b. ______________________

   c. ______________________

   d. ______________________

   e. ______________________

   f. ______________________ (like the least)

6. Overall, do you like school?
   a. yes b. no c. not sure

7. What about school do you think is the best part?

8. Do you expect to graduate from high school?
   a. yes b. no c. not sure

9. Which of the following best describes your future plans?
   a. I do not plan to go to college at all.
   b. I plan to take a few college courses but do not expect to graduate from college.
   c. I expect to graduate from a technical program after high school.
   d. I expect to graduate from a two-year college.
   e. I expect to graduate from a four-year college.
   f. None of these describes me.

10. What is your father's occupation? ______________________

11. What is your mother's occupation? ______________________

12. Has anyone in your family attended college?
    a. yes b. no c. not sure

13. Which of the following best describes your current home situation?
    a. I live with both parents.
    b. I live only with my mother.
    c. I live only with my father.
    d. I live with adults who are not my parents.

Some of the following statements express a feeling or belief which you may have toward mathematics or about studying mathematics. For these statements, fill in the choice that best describes your feelings or opinions. There are no right or wrong answers.

14. Mathematics is an interesting subject.
    a. agree   b. disagree   c. no opinion

15. I like mathematics.
    a. agree   b. disagree   c. no opinion

16. I enjoy working word problems.
    a. agree   b. disagree   c. no opinion

17. Mathematics is confusing to me.
    a. agree   b. disagree   c. no opinion

18. There is nothing creative about mathematics; it is just memorizing formulas and things.
    a. agree   b. disagree   c. no opinion

19. Other than going to the store, I really don't use math very much outside of class.
    a. agree   b. disagree   c. no opinion

20. Outside of science and engineering, there is little need for mathematics in jobs.
    a. agree   b. disagree   c. no opinion

21. During the last school year my grade in math was
    a. A   b. B   c. C   d. D   e. F

22. What math class do you plan to take next year?

    ____

23. Which of the following math courses do you expect to take before you leave high school? (Circle all the courses that you plan to take.)
    a. first-year algebra
    b. geometry
    c. second-year algebra
    d. pre-calculus
    e. calculus
    f. computer programming
    g. I do not plan to take any of these courses.

SCHOOL POST QUESTIONNAIRE

ALL OF YOUR RESPONSES WILL BE KEPT CONFIDENTIAL. NO ONE AT YOUR SCHOOL WILL KNOW HOW YOU RESPONDED.

Name ____

1. Which grade are you in this year?
   a. 7th grade b. 8th grade

2. You do not have to answer this question, but your response would be helpful. Which of the following best describes you?
   a. Caucasian (white)
   b. black
   c. Hispanic
   d. Asian
   e. other

3. Did you attend this school last year?
   a. yes b. no

4. Which of the following best describes your summer activities?
   a. I did not attend any program during the summer.
   b. I attended summer school.
   c. I attended the METRO Achievement Program.
   d. I attended a summer camp.
   e. I attended a church program.
   f. other ____

5. Overall, do you like school?
   a. yes b. no c. not sure

6. Do you expect to graduate from high school?
   a. yes b. no c. not sure

7. Which of the following best describes your future plans?
   a. I do not plan to go to college at all.
   b. I plan to take a few college courses but do not expect to graduate from college.
   c. I expect to graduate from a technical program after high school.
   d. I expect to graduate from a two-year college.
   e. I expect to graduate from a four-year college.
   f. None of these describes me.

Some of the following statements express a feeling or belief which you may have toward mathematics or about studying mathematics. For these statements, fill in the choice that best describes your feelings or opinions. There are no right or wrong answers.

8. Mathematics is an interesting subject.
a. agree b. disagree c. no opinion

9. I like mathematics.
a. agree b. disagree c. no opinion

10. I enjoy working word problems.
a. agree b. disagree c. no opinion

11. Mathematics is confusing to me.
a. agree b. disagree c. no opinion

12. There is nothing creative about mathematics; it is just memorizing formulas and things.
a. agree b. disagree c. no opinion

13. Other than going to the store, I really don't use math very much outside of class.
a. agree b. disagree c. no opinion

14. Outside of science and engineering, there is little need for mathematics in jobs.
a. agree b. disagree c. no opinion

15. What math class are you taking this year?

____

16. What math class do you plan to take next year?

____

17. Which of the following math courses do you expect to take before you leave high school? (Circle all the courses that you plan to take.)
a. first-year algebra
b. geometry
c. second-year algebra
d. pre-calculus
e. calculus
f. computer programming
g. I do not plan to take any of these courses.

METRO POST-QUESTIONNAIRE

This page asks for some information about you. After filling out this page, please tear it off from the rest of the questionnaire. This page will be collected separately. DO NOT PUT YOUR NAME ON ANY OF THE OTHER PAGES.

ALL OF YOUR RESPONSES WILL BE KEPT CONFIDENTIAL. NO ONE AT YOUR SCHOOL OR AT THE METRO PROGRAM WILL KNOW HOW YOU RESPONDED.

Name ____

Now that you have finished the METRO program, we would like to get your thoughts about the program. Please circle the answer to each question that best describes how you feel right now.

1. Which of the following parts of the METRO program did you like the best? (There may be more than one choice.)
   a. math class
   b. communication skills class
   c. science class
   d. field trips
   e. fine arts
   f. team sports
   g. career speakers
   h. individual counseling

2. Which of the following parts of the METRO program did you like the least? (There may be more than one choice.)
   a. math class
   b. communication skills class
   c. science class
   d. field trips
   e. fine arts
   f. team sports
   g. career speakers
   h. individual counseling

3. Did you make new friends through METRO?
   a. yes b. no c. not sure

4. Do you expect to graduate from high school?
   a. yes b. no c. not sure

5. Which of the following best describes your future plans?
   a. I do not plan to go to college at all.
   b. I plan to take a few college courses but do not expect to graduate from college.
   c. I expect to graduate from a technical program after high school.
   d. I expect to graduate from a two-year college.
   e. I expect to graduate from a four-year college.
   f. None of these describes me.

Some of the following statements express a feeling or belief which you may have toward mathematics or about studying mathematics. For these statements, fill in the choice that best describes your feelings or opinions. There are no right or wrong answers.

6. Mathematics is an interesting subject.
   a. agree b. disagree c. no opinion

7. I like mathematics.
   a. agree b. disagree c. no opinion

8. I enjoy working word problems.
   a. agree b. disagree c. no opinion

9. Mathematics is confusing to me.
   a. agree b. disagree c. no opinion

10. There is nothing creative about mathematics; it is just memorizing formulas and things.
    a. agree b. disagree c. no opinion

11. Other than going to the store, I really don't use math very much outside of class.
    a. agree b. disagree c. no opinion

12. Outside of science and engineering, there is little need for mathematics in jobs.
    a. agree b. disagree c. no opinion

13. What math class do you plan to take next year?

    ____

14. Which of the following math courses do you expect to take before you leave high school? (Circle all the courses that you plan to take.)
    a. first-year algebra
    b. geometry
    c. second-year algebra
    d. pre-calculus
    e. calculus
    f. computer programming
    g. I do not plan to take any of these courses.

15. Would you like to attend METRO again?
    a. yes b. no c. not sure

16. Please give a reason for your answer in Question 15.

17. Please circle the choices that best describe your feelings. (You may choose more than one answer.)
    a. I would like to attend METRO during the school year on Saturdays.
    b. I would like to attend METRO next summer.
    c. I do not want to attend METRO again.

METRO OPEN-ENDED QUESTIONNAIRE

FOR THIS ASSIGNMENT YOU ARE TO EXPRESS YOUR OPINIONS ABOUT DIFFERENT PARTS OF THE METRO PROGRAM. THERE ARE NO RIGHT OR WRONG ANSWERS.

Name (optional) ______________________________

Section (please circle the correct choice) 7A 7B 8A 8B

1. Suppose someone asked you "What's the best thing about METRO?" How would you answer them?

2. Suppose the same person asked you "What's the worst thing about METRO?" How would you answer them?

3. How do you feel about your math class?

4. How was your math class at METRO different from your math class in school?

5. Has the METRO math class changed your attitude toward math? If so, how?

6. Has the METRO math class changed your attitude toward taking algebra? If so, how?

7. How was your science class at METRO different from your science class at school?

8. In what ways did the character development class help you?

9. Describe how helpful you found your communication skills class.

10. How do you feel about the fine arts class? Was it a good use of your time?

11. What comments do you have to make about sports?

12. If someone were to ask you whether or not they should attend METRO, what would you tell them? Why?

13. What influence do you think METRO has had in your life?

14. Has METRO helped you decide on a future career? If so, what career is it?

15. What else would you like to say about METRO? (Use the back of the page, if necessary.)

METRO ADVISOR FORM

ADVISOR FORM

1. Girl's Name ____

2. At the beginning of METRO, how outgoing did this girl appear to be?
    a. very outgoing
    b. somewhat outgoing
    c. somewhat shy
    d. very shy

3. How outgoing does this girl appear to be now?
    a. very outgoing
    b. somewhat outgoing
    c. somewhat shy
    d. very shy

4. What changes, if any, have you noticed in this girl during the METRO program?

5. What has this girl had to say about her experiences at METRO?

6. What qualities, if any, has METRO brought out in this girl?

METRO PARENT END OF PROGRAM SURVEY

PLEASE FILL OUT ONE FORM PER FAMILY.

THIS SUMMER A STUDY HAS BEEN CONDUCTED OF THE METRO ACHIEVEMENT PROGRAM. YOUR RESPONSES TO THE FOLLOWING QUESTIONS WILL BE APPRECIATED. ALL RESPONSES WILL REMAIN CONFIDENTIAL.

1. What has your daughter had to say about her experiences at METRO?

2. Has your daughter made new friends through METRO?
   a. yes b. no c. not sure

3. Before METRO, how outgoing was your daughter?
   a. very outgoing b. somewhat outgoing
   c. somewhat shy d. very shy

4. How outgoing does your daughter appear to be now?
   a. very outgoing b. somewhat outgoing
   c. somewhat shy d. very shy

5. What changes, if any, have you noticed in your daughter that are due to her involvement in METRO?

6. What qualities, if any, has METRO brought out in your daughter?

7. Would you like to see your daughter attend METRO again? Why or why not?

8. Would you recommend METRO to other parents? Why or why not?

9. What other comments would you like to make about METRO?

10. What grade will you daughter be in this September?
    a. 7th grade   b. 8th grade

11. Please circle the most appropriate category.
    a. white   b. black
    c. Hispanic   d. Asian
    e. other

12. What is your relationship to the METRO participant?
    a. mother   b. father   c. other

13. Name (optional) ______________________________

HIGH SCHOOL METRO INTERVIEW

I want to thank you for taking time to talk with me. All of your comments will be held confidential; METRO will only get a summary of comments or a list of comments with no names attached. If you don't object, I would like to tape this interview.

1. Your name is ____.

2. Your age is _______________.

3. What school do you attend? What grade will you be in next year?

I would like to ask you several questions about METRO.

4. Had you ever attended a summer program before attending METRO? If so, what type of program was it?

5. When did you first attend METRO?

6. What made you want to attend METRO in the first place?

7. What parts of METRO did you like the best? Why?

8. What parts of METRO did you like the least? Why?

9. What influence do you think METRO has had in your life?

10. If someone were to ask you whether or not they should attend METRO, what would you tell them? Why?

I would like to now ask you some questions about school in general and about your future plans.

11. What courses did you take last year?

12. How would you rate your performance last year?

13. What are you planning to take next year?

14. Has there been any change in your school performance or your course program as a result of attending METRO? If so, what?

15. Are you planning to attend college? If so, where? Did METRO have any influence on your decision to attend college or on your college preference?

16. Has anyone in your family ever attended college?

17. Have you decided what field you want to enter when you leave school?

APPENDIX D

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